Exhibit A

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Page 1
                 Steven P, Feinstein, Ph.D
1
 2
               UNITED STATES DISTRICT COURT
 3
                NORTHERN DISTRICT OF OHIO
                    EASTERN DIVISION
 5
    *********
 6
    OHIO PUBLIC EMPLOYEES RETIREMENT
    SYSTEM, on Behalf of Itself and
    all Others Similarly Situated,
8
 9
                   Plaintiff
                           CA NO. 4:08-CV-00160
10
    VS.
11
    FEDERAL HOME LOAN MORTGAGE
    CORPORATION, a/k/a FREDDIE MAC,
12
    RICHARD F. SYRON,
    PATRICIA L. COOK,
13
    ANTHONY S. PISZEL and
    EUGENE M. MC QUADE,
14
                   Defendants
15
    ********
16
17
                VIDEOTAPED DEPOSITION OF:
18
                STEVEN P. FEINSTEIN, PH.D.
19
                       MORGAN LEWIS
20
                    One Federal Street
21
                  Boston, Massachusetts
22
             August 10, 2017 8:39 a.m.
23
24
    Reported By: Darlene M. Coppola, RMR, CRR
25
    Job No: 127062
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	Page 2	Page 3
1 2 3 4 5 6 7 8 9 10 11 12 13	Steven P, Feinstein, Ph.D APPEARANCES: Representing the Plaintiff: MARKOVITS STOCK & DE MARCO 3825 Edwards Road Cincinnati, OH 45209 BY: WILLIAM MARKOVITS, ESQUIRE -and- STRAUSS TROY CO., LPA 150 East Fourth Street Cincinnati, OH 45202	1 Steven P, Feinstein, Ph.D 2 APPEARANCES (Continued): 3 Representing the Defendant Federal Home 4 Loan Mortgage Corporation a/k/a Freddie 5 Mac: 6 MORGAN LEWIS & BROKIUS 7 One Federal Street 8 Boston, MA 02110 9 BY: JASON FRANK, ESQUIRE 10 LIZA HAYS, ESQUIRE 11 MICHAEL BLANCHARD, ESQUIRE 12 EMILY RENSHAW, ESQUIRE 13 14
15 16 17 18 19 20 21 22 23 24 25	BY: RICHARD WAYNE, ESQUIRE Representing the Defendant Anthony Piszel: MURPHY & MC GONIGLE 1185 Avenue of the Americas New York, NY 10036 BY: JAMES GOLDFARB, ESQUIRE (Continued on next page)	15 16 17 18 Representing the Defendant Richard Syron: 19 SIDLEY AUSTIN 20 1501 K Street Northwest 21 Washington, DC 20005 22 BY: FRANK VOLPE, ESQUIRE 23 24 25 (Continued on next page)
	Page 4	Page 5
1 2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D APPEARANCES (Continued): Representing the Defendant Eugene McQuade: DECHERT Cira Centre 2929 Arch Street Philadelphia, PA 19104 BY: CATHERINE WIGGLESWORTH, ESQUIRE	1 Steven P, Feinstein, Ph.D 2 INDEX 3 EXAMINATION 4 Witness Name 5 Page 6 Steven P. Feinstein, Ph.D. 7 Direct By Mr. Frank 8
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	Representing the Defendant Patricia Cook: ZUCKERMAN SPAEDER 1800 M Street Northwest Washington, DC 20036 BY: ADAM FOTIADES, ESQUIRE Also Present: Howard Lindenberg, Freddie Mac Nikolai Caswell, Navigant Consulting David Marcus, Ph.D., Cornerstone Research Crystal Strawbridge, Videographer	Exhibit Description 12 13 Exhibit No. 95 Declaration, Steven P. Page 19 14 Feinstein, Ph.D. 15 Exhibit No. 96 Report on Market Page 55 16 Efficiency, June 7, 207 17 Exhibit No. 97 Report on Market Page 122 18 Efficiency, February 6, 2015 19 Exhibit No. 98 Report on Market Page 125 Efficiency, February 13, 2015 20 Exhibit No. 99 Expert Report, Petrobras Page 127 23 Exhibit No. 101 KBR Report Page 128 24 Exhibit No. 102 Expert Report, World

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	Page 6		Page 7
1 2	Steven P, Feinstein, Ph.D Acceptance Corporation	1	Steven P, Feinstein, Ph.D
3	Exhibit No. 103 Expert Report, Eletrobras	2	THE VIDEOGRAPHER: This is the
4	Page 133	3	start of tape labeled No. 1 of the
7	Exhibit No. 100 Exhibit 7A - Petrobras ADR	4	videotaped deposition of Dr. Steven
5	Page 144	5	Feinstein fine in the matter of Ohio Public
6	Regression Study	6	Employees Retirement, et al. verus the
	Exhibit No. 104 Freddie Mac Reports	7	Federal Home Loan Mortgage Corporation, et
7 8	Page 187	8	al., in the United States District Court,
9	(Continued on next page)	9	the Northern District of Ohio, Eastern
10 11	INDEX EXHIBITS	10	Division, Civil Action No. 4:08-CV-00160.
12	Exhibit Description	11	This deposition is being held at One
13	Page	12	Federal Street, Boston, Massachusetts on
13	No. 105 The"Less Than" Efficient	13	August 10, 2017, at approximately 8:39 a.m.
14	187	14	
15	Capital Markets Hypothesis: Requiring	15	My name is Crystal Strawbridge from
	More Proof from Plaintiffs		TSG Reporting, Inc., and I am the legal
16 17	in Frand-o-theMarket Cases No. 106 Applied Statistics for	16	video specialist. The court reporter is
	188	17	Darlene Coppola in association with TSG
18 19	Public Policy No. 107 - Prohability and Statistics	18	Reporting.
1.7	No. 107 Probability and Statistics 224	19	Will counsel please introduce
20	for Engineering in the	20	yourselves.
21	Sciences	21	MR. MARKOVITS: Bill Markovits
	No. 108 Press Release	22	on behalf of Markovits, Stock & DeMarco, on
22 23	326 No. 109 NERA Manuscript	23	behalf of the plaintiff, Ohio Public
	361	24	Employees Retirement System.
24 25		25	MR. WAYNE: Rick Wayne,
	Page 8		Page 9
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Strauss Troy, on behalf of plaintiffs.	2	identification of the other people present?
3	MR. VOLPE: Frank Volpe,	3	MR. FRANK: Sure. They're
4	Sidley Austin on behalf Richard Syron.	4	nonlawyers here, and if they could put
5	MR. GOLDFARB: James Goldfarb	5	their presence on the record, that would be
6	from Murphy & McGonigle on behalf of	6	great.
7	Anthony Piszel.	7	DR. MARCUS: David Marcus from
8	MR. FOTIADES: Adam Fotiades,	8	Cornerstone Research.
9	Zuckerman Spaeder, on behalf of Patricia	9 10	MR. CASWELL: Nikolai Caswell
10	Cook.		from Navigant Consulting.
11	MS. WIGGLESWORTH: Catherine	11 12	CTEVEND EFFICIENT DUD
12	Wigglesworth, Dechert, LLP on behalf of		STEVEN P. FEINSTEIN, PH.D.,
13	Eugene McQuade.	13	a witness called for examination
14	MR. LINDENBERG: Howard	14	by counsel for the Defendant Federal
15	Lindenberg on behalf of Freddie Mac.	15	Home Loan Mortgage Corporation a/k/a
16	MS. HAYS: Elizabeth Hays on	16	Freddie Mac, having been satisfactorily
17	behalf of Freddie Mac, Morgan Lewis.	17	identified by the production of his
18	MR. BLANCHARD: Michael	18	driver's license and being first duly
19	Blanchard, Morgan Lewis, on behalf of	19	sworn by the Notary Public, was examined
20	Freddie Mac.	20	and testified as follows:
21	MR. FRANK: Good morning,	21	
22	everyone.	22	DIRECT EXAMINATION
23	Jason Frank on behalf of Freddie Mac	23	BY MR. FRANK:
24	with Morgan Lewis.	24	Q. Good morning, Dr. Feinstein.
25	MR. MARKOVITS: Can we have	25	A. Good morning.

	Page 10		Pago 11
	Page 10		Page 11
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	MR. FRANK: Before we begin,	2	of the deposition and the subpoena that
3	counsel for the plaintiff and I will just	3	brings us here today, and the credentials
4	put a few stipulations on the record, if	4	of the court reporter and the videographer.
5	that's all right.	5	Is that acceptable?
6	THE WITNESS: Sure.	6	MR. MARKOVITS: Yes. The
7	MR. FRANK: Very good.	7	sufficiency of the notice to the extent it
8	Mr. Markovits, good morning.	8	is for today. As you know, we objected to
9	MR. MARKOVITS: Good morning.	9	any deposition beyond today.
10	MR. FRANK: Can we agree that	10	MR. FRANK: We understand that
11	we'll reserve all objections except as to	11	there is an agreement to disagree with
12	the form of the question and all motions to	12	respect to the length of the deposition,
13	strike until the testimony is offered to	13 14	and hopefully, the parties can work that
14 15	the court?	15	out over the proceedings.
16	MR. MARKOVITS: Yes.		MR. MARKOVITS: Fair enough.
17	MR. FRANK: And we're willing to agree that the witness can review and	16 17	MR. FRANK: Very good. BY MR. FRANK:
18	sign the transcript under the pains and	18	Q. Dr. Feinstein, you've been deposed
19	penalties of perjury and that no formal	19	many times before; is that fair to say?
20	signing before a court reporter is	20	A. Yes.
21	necessary.	21	Q. You've been engaged as an expert by
22	Is that acceptable?	22	plaintiff shareholders in securities cases
23	MR. MARKOVITS: Yes.	23	previously, correct?
24	MR. FRANK: And we'd like to	24	A. Yes.
25	stipulate to the sufficiency of the notice	25	Q. And in connection with those
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	D 10		
	Page 12		Page 13
1		1	
1 2	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D engagements, you've been deposed over 20	2	Steven P, Feinstein, Ph.D A. Correct. But actually, there were
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D engagements, you've been deposed over 20 times? A. Yes. Q. Over 30 times? A. Probably. Yes, yes. Q. Over 40 times? A. I don't have a specific count. There is a there's an exhibit in my report with the depositions I've given over the last four years, but we can count them if you like. I haven't. Q. But that exhibit isn't complete insofar as it only identifies matters over the course of four years, correct? A. Well, that's what it identifies. That's what it states it identifies. So it doesn't include depositions	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D A. Correct. But actually, there were three depositions since the date of the report. So it's incomplete in that sense as well. But also, it does not include, and it doesn't set out to include, the depositions prior to four years. So you're right. There were more depositions earlier than four years prior to today. Q. What are the matters in which you've been engaged, if any, that are not listed in the report post the finalization of the report? A. You mean which cases? Q. Yes. A. Okay. ARCP, it's American Realty Capital Partners. It's a securities
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D engagements, you've been deposed over 20 times? A. Yes. Q. Over 30 times? A. Probably. Yes, yes. Q. Over 40 times? A. I don't have a specific count. There is a there's an exhibit in my report with the depositions I've given over the last four years, but we can count them if you like. I haven't. Q. But that exhibit isn't complete insofar as it only identifies matters over the course of four years, correct? A. Well, that's what it identifies. That's what it states it identifies. So it doesn't include depositions prior to four years.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D A. Correct. But actually, there were three depositions since the date of the report. So it's incomplete in that sense as well. But also, it does not include, and it doesn't set out to include, the depositions prior to four years. So you're right. There were more depositions earlier than four years prior to today. Q. What are the matters in which you've been engaged, if any, that are not listed in the report post the finalization of the report? A. You mean which cases? Q. Yes. A. Okay. ARCP, it's American Realty Capital Partners. It's a securities litigation. LSB, is another securities
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Steven P, Feinstein, Ph.D engagements, you've been deposed over 20 times? A. Yes. Q. Over 30 times? A. Probably. Yes, yes. Q. Over 40 times? A. I don't have a specific count. There is a there's an exhibit in my report with the depositions I've given over the last four years, but we can count them if you like. I haven't. Q. But that exhibit isn't complete insofar as it only identifies matters over the course of four years, correct? A. Well, that's what it identifies. That's what it states it identifies. So it doesn't include depositions prior to four years. Q. Fair enough.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Steven P, Feinstein, Ph.D A. Correct. But actually, there were three depositions since the date of the report. So it's incomplete in that sense as well. But also, it does not include, and it doesn't set out to include, the depositions prior to four years. So you're right. There were more depositions earlier than four years prior to today. Q. What are the matters in which you've been engaged, if any, that are not listed in the report post the finalization of the report? A. You mean which cases? Q. Yes. A. Okay. ARCP, it's American Realty Capital Partners. It's a securities litigation. LSB, is another securities class action securities case. And the
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Steven P, Feinstein, Ph.D engagements, you've been deposed over 20 times? A. Yes. Q. Over 30 times? A. Probably. Yes, yes. Q. Over 40 times? A. I don't have a specific count. There is a there's an exhibit in my report with the depositions I've given over the last four years, but we can count them if you like. I haven't. Q. But that exhibit isn't complete insofar as it only identifies matters over the course of four years, correct? A. Well, that's what it identifies. That's what it states it identifies. So it doesn't include depositions prior to four years. Q. Fair enough. So it is incomplete in the sense	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Steven P, Feinstein, Ph.D A. Correct. But actually, there were three depositions since the date of the report. So it's incomplete in that sense as well. But also, it does not include, and it doesn't set out to include, the depositions prior to four years. So you're right. There were more depositions earlier than four years prior to today. Q. What are the matters in which you've been engaged, if any, that are not listed in the report post the finalization of the report? A. You mean which cases? Q. Yes. A. Okay. ARCP, it's American Realty Capital Partners. It's a securities litigation. LSB, is another securities class action securities case. And the third one slips my mind. RSO, Resource
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D engagements, you've been deposed over 20 times? A. Yes. Q. Over 30 times? A. Probably. Yes, yes. Q. Over 40 times? A. I don't have a specific count. There is a there's an exhibit in my report with the depositions I've given over the last four years, but we can count them if you like. I haven't. Q. But that exhibit isn't complete insofar as it only identifies matters over the course of four years, correct? A. Well, that's what it identifies. That's what it states it identifies. So it doesn't include depositions prior to four years. Q. Fair enough. So it is incomplete in the sense that it's not a complete record of all of	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D A. Correct. But actually, there were three depositions since the date of the report. So it's incomplete in that sense as well. But also, it does not include, and it doesn't set out to include, the depositions prior to four years. So you're right. There were more depositions earlier than four years prior to today. Q. What are the matters in which you've been engaged, if any, that are not listed in the report post the finalization of the report? A. You mean which cases? Q. Yes. A. Okay. ARCP, it's American Realty Capital Partners. It's a securities litigation. LSB, is another securities class action securities case. And the third one slips my mind. RSO, Resource Resource Capital.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D engagements, you've been deposed over 20 times? A. Yes. Q. Over 30 times? A. Probably. Yes, yes. Q. Over 40 times? A. I don't have a specific count. There is a there's an exhibit in my report with the depositions I've given over the last four years, but we can count them if you like. I haven't. Q. But that exhibit isn't complete insofar as it only identifies matters over the course of four years, correct? A. Well, that's what it identifies. That's what it states it identifies. So it doesn't include depositions prior to four years. Q. Fair enough. So it is incomplete in the sense that it's not a complete record of all of the matters in which you've worked. It's	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D A. Correct. But actually, there were three depositions since the date of the report. So it's incomplete in that sense as well. But also, it does not include, and it doesn't set out to include, the depositions prior to four years. So you're right. There were more depositions earlier than four years prior to today. Q. What are the matters in which you've been engaged, if any, that are not listed in the report post the finalization of the report? A. You mean which cases? Q. Yes. A. Okay. ARCP, it's American Realty Capital Partners. It's a securities litigation. LSB, is another securities—class action securities case. And the third one slips my mind. RSO, Resource—Resource Capital. Q. Are there any other matters that you
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Steven P, Feinstein, Ph.D engagements, you've been deposed over 20 times? A. Yes. Q. Over 30 times? A. Probably. Yes, yes. Q. Over 40 times? A. I don't have a specific count. There is a there's an exhibit in my report with the depositions I've given over the last four years, but we can count them if you like. I haven't. Q. But that exhibit isn't complete insofar as it only identifies matters over the course of four years, correct? A. Well, that's what it identifies. That's what it states it identifies. So it doesn't include depositions prior to four years. Q. Fair enough. So it is incomplete in the sense that it's not a complete record of all of the matters in which you've worked. It's complete only insofar as it covers a	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Steven P, Feinstein, Ph.D A. Correct. But actually, there were three depositions since the date of the report. So it's incomplete in that sense as well. But also, it does not include, and it doesn't set out to include, the depositions prior to four years. So you're right. There were more depositions earlier than four years prior to today. Q. What are the matters in which you've been engaged, if any, that are not listed in the report post the finalization of the report? A. You mean which cases? Q. Yes. A. Okay. ARCP, it's American Realty Capital Partners. It's a securities litigation. LSB, is another securities—class action securities case. And the third one slips my mind. RSO, Resource—Resource Capital. Q. Are there any other matters that you would list in your — in that disclosure if
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Page 14 Page 15 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 1 2 2 engaged, were you assigned a task? A. No. 3 3 Q. The only three that are omitted from A. Yes. 4 4 Q. What was that task? the disclosure, because it simply -- they 5 5 simply hadn't been -- they hadn't occurred A. You mean after the first 6 yet are, ARCP, LSB, and RSO? 6 engagement -- when I was first engaged, I 7 7 A. To the best of my recollection, yes. was asked questions about what had changed 8 8 Q. Now, in this matter, OPERS engaged in recent years with respect to how 9 9 economists would set out to prove or you as its expert; is that correct? 10 10 A. Counsel for OPERS, yes. disprove or evaluate market efficiency and Q. When did counsel for OPERS engage 11 11 if anything in the profession or in the 12 you as an expert? 12 legal arena has changed that affects the 13 13 A. I don't recall specifically. If I methodology. 14 can see the -- my -- the date -- sometime 14 It's -- essentially, I was asked the questions that are listed as the scope in 15 last year in 2016. It was a couple of 15 16 months before the date of the declaration 16 declaration that I submitted, and I was 17 17 asked to write a declaration to that that I submitted. 18 O. You submitted a declaration in this 18 effect, memorializing my answer to those 19 case, correct? 19 questions. 20 20 A. Right, and that was in 2016. Q. At some point after you signed your 21 Q. And it's -- to the best of your 21 declaration, were you asked to perform 22 recollection, you were engaged two months 22 additional tasks? A. Yes. 23 23 prior to your signing that declaration? Q. What were those? 24 A. Approximately, yes. 24 25 Q. Now, at some point after you were 25 A. Well, actually, I do want to add Page 16 Page 17 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 something to the earlier answer, which is I 2 see the declaration and the -- can I see 3 was also asked initially to review the 3 those documents? 4 4 Q. We'll be marking them soon and reports of Dr. Hallman and Dr. Bajaj, and 5 5 that was part of the engagement, the you'll have a chance to look at them, and 6 6 initial engagement, from which I produced if you need to correct anything, you'll 7 the declaration. 7 have a chance. 8 8 Subsequent to submitting the A. Okay. 9 declaration, I was asked to conduct my own 9 Q. You've written reports on market 10 10 evaluation of market efficiency for Freddie efficiency in other cases, correct? 11 11 Mac stock and also opine as to whether or A. Yes. 12 not a common damage methodology was 12 Q. In every one of those reports, you 13 13 available that could compute damages in a concluded that the security at issue traded 14 common method -- methodology for all class 14 in an efficient market; is that correct? 15 15 members. A. That's right. 16 Q. So prior to signing your declaration 16 Q. You have never written a report in 17 17 in this matter, you reviewed the Hallman which you concluded that the security at 18 18 report and Bajaj report from 2012; is that issue traded in a market that was not 19 19 efficient, correct? correct? 20 20 A. Well, I -- the specific answer to A. That's my recollection. I may be 21 wrong, but that's, as I sit here now, what 21 your question is, that is correct. 22 22 I recall. Although, I have reached a 23 23 conclusion on a number of occasions that I Q. Now, you've written reports --24 A. Actually, can I -- just to be sure 24 would not be able to prove or opine that 25 25 the stock traded in an efficient market. and make sure I'm correct about that, can I

	Page 18		Page 19
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Q. Now, you own a firm; is that	2	Q. In total, including your own fees,
3	correct?	3	how much has been billed to date?
4	A. That's right.	4	A. I don't know. It's not one of the
5	Q. What's the name of the firm?	5	documents that I reviewed in preparation
6	A. Crowninshield Financial Research.	6	for today's deposition. Sometimes I review
7	Q. And what is the corporate structure	7	that, but in this case, I was reviewing
8	of that firm?	8	other things.
9	A. It's an S corporation.	9	Q. Can you estimate that more than
10	Q. Now, have you been engaged by	10	\$100,000 has been invoiced to date?
11	counsel for OPERS as an expert, or has your	11	A. I think that's correct, as an
12	firm been engaged?	12	approximation. I don't think it's much
13	A. I think specifically the again,	13	more than that.
14	if I had the engagement letter in front of	14	Q. Now, are you the sole owner of the
15	me, I could tell you for sure. But to the	15	firm?
16	best of my recollection, without the	16	A. Yes, and that's written in my
17	document, the firm is engaged, but the	17	report.
18	engagement letter specifically says that I	18	Q. So in so all of the profits from
19	will be the lead expert and analyst on the	19	this engagement go to you; is that correct?
20	case.	20	A. Well, profits over costs, yes.
21	Q. And in addition to your own fees,	21	
22	fees from others at your firm are being	22	MR. FRANK: Let's mark this.
23	charged in connection with this engagement;	23	
24	is that correct?	24	(Exhibit No. 95 marked for
25	A. That's right.	25	identification.)
	Page 20		Page 21
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2		2	A. Yes.
3	BY MR. FRANK:	3	Q. And to the best of your knowledge as
4	Q. Dr. Feinstein, I'm putting before	4	you sit here today, everything in this
5	you a document that has been marked as	5	Exhibit 95 is truthful; is that correct?
6	Exhibit 95.	6	A. Yes.
7	What is Exhibit 95?	7	Q. Now, after you signed this document,
8	A. (Witness reviews document.)	8	you were tasked with assessing the market
9	This is the 2016 declaration that I	9	efficiency of Freddie Mac's common stock
10	described earlier.	10	over a particular period of time,
11	Q. This is a declaration of Professor	11	correct?
12	Steven P. Feinstein, Ph.D., CFA, dated	12	A. That's right.
13	December 16, 2016, correct?	13	Q. And you're familiar with the factors
14	A. Correct.	14	set forth in the Cammer case, correct?
15	Q. And this is your signature that	15	A. Of course.
16	appears on page	16	Q. There are five factors, right?
17	A. Eight.	17	A. Yes.
18	Q 8 of the document.	18	Q. And in connection with the fifth
19	A. Yes.	19	factor, you conducted two tests; is that
20	Q. And you drafted this document; is	20	correct?
21	that correct?	21	A. That's correct.
22	A. Yes.	22	Q. One of those tests was an event
23	Q. And you reviewed this document in	23	study and the other test was a z-test; is
24	preparation for coming here today,	24	that correct?
25	correct?	25	A. Right. The z-test is a collective

Page 22		Page 23
1 Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2 event study, actually, but it's a different	2	Plaintiffs in Fraud on the Market Cases."
3 type of event study.	3	Do you see that?
Q. So you consider both of those tests	4	A. I do.
5 to be forms of event studies?	5	Q. Did I read that correctly?
6 A. Right. The first is the more traditional event study. The second is a	6 7	A. You did. Q. And if I refer to that article as
7 traditional event study. The second is a type of event study, but it's not the	8	the FDT article, you'll know what I'm
9 traditional event study. It's also	9	referring to, correct?
known by the way, it's also known as the	10	A. Yes.
FDT test for the authors who first wrote	11	Q. Now, what is an event study?
12 about it.	12	A. Oh, an event study is a type of
Q. What are the names of the authors	13	economic financial economic analysis
who first wrote about it?	14	that has a number of components.
A. Ferrillo, Dunbar and Tabak.	15	It isolates the what's called the
Q. And you referenced their article in your declaration; is that correct?	16 17	residual return, which is a portion of a stock or a securities return that is
18 A. Yes.	18	controlled for market and peer effects, and
19 Q. And if I refer to and that	19	then tests whether or not the residual
20 article is specifically referenced in	20	return was of such magnitude that it would
Footnote 5 of Exhibit 95, correct?	21	be extremely unlikely to observe that
22 A. Yes.	22	result had the return residual return
Q. The name of the article is "The	23	been caused by random volatility alone.
24 'Less Than' Efficient Capital Market's	24	And therefore, it's because of
25 Hypothesis: Requiring More Proof From	25	those features, it's a test that assesses
Page 24		Page 25
1 Steven P. Feinstein, Ph.D	1	Steven P. Feinstein, Ph.D
Steven P, Feinstein, Ph.D whether or not information has caused the	1 2	Steven P, Feinstein, Ph.D still an accurate description of what a
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whether or not information has caused the stock price to move on the date of the event. So it's an analysis to determine whether or not information in the course of a particular event has caused the security price to move. Q. And let me turn your attention to Paragraph 22 of your declaration. That's on Page 6. On Paragraph 22, you describe a z-test as follows: You write, "One such test is a z-test that collectively compares the differential incidence of significant stock price movements across two groups of dates, where one group comprises dates with high information flow and the second group is composed of dates with less information flow." Do you see that? A. I do. Q. Did I read that correctly?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	still an accurate description of what a z-test is? A. Well, it's a description of the FDT test. The FDT test is uses the z-test. The z-test is in statistics textbooks. It's a very old test for this purpose. The FDT test applies the z-test to the application of testing market efficiency and testing the impact of information. But because the z-test is so essential and central to the FDT test, some people call the entire FDT test the z-test. And others refer to a z-test as being the statistical test that is a component of FDT test. I just want to give a very complete answer so you understand the difference. As I'm using the word "z-test" here, yes, I'm using the word "z-test" here to refer to the FDT test. And, therefore, yes, this is a correct and true

	Page 26		Page 27
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	test that has existed for many decades that	2	A. I'm not sure. I've used I
3	compares the incidence of statistical	3	developed a test similar to the z-test,
4	significance across two populations; is	4	very similar, but it's not exactly the
5	that correct?	5	z-test, and I've been using it for a few
6	A. Right. The incidence of anything,	6	years.
7	really. It could be the incidence of	7	My test used a binomial test, rather
8	statistical significance or the incidence	8	than the z-test, to test for the difference
9	of a cure from a medical treatment. But	9	in a significant difference in
10	it's an incidence frequency test that	10	frequencies of significance.
11	compares whether the incidence of something	11	I also used a similar test that
12	in one sample is different from the	12	looked at compared price dynamics
13	incidence of that same thing in the other	13	between two samples; a sample of news days
14	sample.	14	versus a sample of non-news days.
15	Q. And an FDT test is just a z-test as	15	But I can't tell you specifically.
16	applied in the context of assessing market	16	I would have to check my records to answer
17	efficiency?	17	that question with precision. But a few
18	A. Yes.	18	years; several years.
19	Q. Now, when was a z-test first used in	19	I used it in Petrobras I used it
20	a securities case?	20	in Petrobras, which goes back at least a
21	A. Quite some time ago. I think I	21	couple of years now.
22	think it goes back at least to PolyMedica.	22	Q. And when you say you used it in
23	I think Dr. Dunbar used it in PolyMedica.	23	Petrobras, are you saying that you used the
24	Q. When did you first use a z-test in a	24	FDT test in Petrobras, or that you used the
25	securities case?	25	test that you developed that was similar to
	Page 28		Page 29
1		1	
1 2	Steven P, Feinstein, Ph.D the FDT test?	1 2	Steven P, Feinstein, Ph.D since Petrobras, which is December 2015,
3	A. I'd have to look at my Petrobras	3	I'm quite confident it's each of these:
4	report, but they're very similar. I	4	December 2015, January 2016, KBR, Symbol
5	consider them almost interchangeable.	5	Technologies, and others as well. I
6	Q. Did you use the FDT test in this	6	just I would have to check my records to
7	case?	7	know for sure. But I have used it
8	A. Yes, yes.	8	frequently.
9	Q. Did you use your version of a z-test	9	Q. So on Exhibit 2 to Exhibit 95 as
10	in this case or the FDT z-test?	10	marked in this deposition, we see a listing
11	A. I used the FDT test, both in this	11	of your testimony over the last four years,
12	case and in Petrobras. I remember now for	12	correct?
13	sure.	13	A. Yes.
14	Q. Now, other than this case and	14	Q. And if you turn to Page 22, we see
15	Petrobras, have you used the FDT z-test in	15	that there's a in the middle of the
16	any other cases?	16	page, there's "in re: Petrobras securities
17	A. Yes.	17	litigation."
18	Q. What are those cases?	18	Do you see that?
19	A. Most of the cases in recent years.	19	A. Yes.
20	Q. Can you name them for me?	20	Q. And there, it says Case No.
21	A. Again, I would not with 100	21	14CV-9662-JSR.
22	percent precision, but with, essentially,	22	A. Yes.
23	an approximation based on my recollection.	23 24	Q. Do you see that?
24	But if we look at Exhibit 2 to this	ı 24	A. Yes.
25	declaration and look at the cases I've done	25	Q. And is it your understanding that

Steven P, Feinstein, Ph.D the that at the beginning of the case, the number is an indication of the year in which the case was filed? A. I think that's right. C. And so, this Petrobras is a case that was filed in the year 2014; is that right? A. I'll take your word for it. I wouldn't know for sure. C. But what you do know for sure is that you gave deposition testimony in that case in October and December of 2015; is that you gave deposition testimony in that case in October and December of 2015, is that you gave deposition testimony at an evidentiary hearing in December of 2015, correct? A. That's right. C. And then you gave testimony at an evidentiary hearing in December of 2015, correct? A. Right. Yes. C. And in the KBR matter, you gave deposition testimony in April of 2016; is that correct? T. A. Right. Yes. Steven P, Feinstein, Ph.D A. Yes. A. Yes. It was in the Petrobras case that the judge validated its use. And prior to that, there hadn't been as much court validation of the test. Q. Now, you use deposition testimony in January of 2016; is that right? A. Right. Q. And a you sit here today, it's your memory that you used the FDT and the correct? A. Right, and Just want to -PII yes, that's true. The proof that, there hadn't been as much court validation of the test. Q. And an the Symbol Technologies case, you gave deposition testimony in January of 2016; is that right? A. Right. Q. And dish the KBR matter, you gave deposition testimony in January of 2016; is that right? A. Right. Q. And that was a securities class action; is that right? A. Yes. It was in the Petrobras case that the judge validated its use. And prior to that, there hadn't been as much court validation of the test. Q. Now, you gave deposition testimony in January of 2016; is that right? A. Right. Q. And dust was a securities that the judge validated its use. And prior to that, there ha		Page 30		Page 31
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for that was filed in the year 2014; is that right? A. I'll take your word for it. I you gouldn't know for sure. Q. But what you do know for sure is that you gave deposition testimony in that case in October and December of 2015; is that right? A. That's right. Q. And then you gave testimony at an evidentiary hearing in December of 2015, correct? A. That's right. Q. And you list those facts here on exhibit 2 or correct? A. Right. Yes. Q. Now, you recall that you used an FDT z-test in the Petrobras matter, correct? Steven P, Feinstein, Ph.D the test, but I would have to check the report to know for sure. Q. So as you sit here today, it's your memory that you used the FDT z-test in the KRR matter? A. I wouldn't say that exactly. I would say it's a reasonable inference from what I know about from when I started using it, but I would have to check the check to see for sure. Q. Is it fair to say that you're just not sure whether you used the FDT z-test in the KRR matter? A. Yes, that's -that's fair. Q. Is it fair to say that as you sit here today, viriput plat of the KRR matter? A. Yes, that's -that's fair. Q. Is it fair to say that to sure whether you used the FDT z-test in the Symbol and the documents in front of me to correct. I mean, I would be 100 percent sure if I had the documents in front of me to correct. The rect tokey is the tase of the correct shall an applied to the case where you gave deposition testimony in January of 2016; is that right? A. Right. Q. And in the KBR matter, you gave deposition testimony in January of 2016; is that right? A. Right. Q. And in the KBR matter, you gave deposition testimony in January of 2016; is that right? A. Right. Q. And in the KBR matter, you gave deposition testimony in January of 2016; is that right? A. Right. A.				,
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right? A. I'll take your word for it. I wouldn't know for sure. Q. But what you do know for sure is that you gave deposition testimony in that case in October and December of 2015; is that right? A. That's right. Q. And then you gave testimony at an evidentiary hearing in December of 2015, R. That's right. Q. And then you gave testimony at an evidentiary hearing in December of 2015, R. That's right. Q. And you list those facts here on expected that you used the FDT z-test in the symbol case, correct? A. Right. Q. And in the KBR matter, you gave deposition testimony in April of 2016; is that correct? A. Right. Q. And in the KBR matter, you gave deposition testimony in April of 2016; is that correct? A. Right, and I just want to PII yes, that's true. Journal of the test. Q. Now, in the Symbol case, you gave deposition testimony in January of 2016; is that right? A. Right. Q. And as you sit here today, it's your memory that you used the FDT z-test in the Symbol case, correct? A. Right. Q. And in the KBR matter, you gave deposition testimony in April of 2016; is that correct? A. Right, and I just want to PII yes, that's true. Journal of the test. Q. Now, in the symbol and January of 2016, is that right? A. Right. Q. And as you sit here today, it's your memory that you used the FDT z-test in the symbol case, correct? A. Right. Q. And in the KBR matter, you gave deposition testimony in April of 2016; is that correct? A. Right. Q. And in the KBR matter, you gave deposition testimony in April of 2016; is that correct? A. Right. Q. And in the KBR matter, you gave deposition testimony in April of 2016; is that correct? A. Right. Q. And in the KBR matter, you gave deposition testimony in April of 2016; is that correct? A. Right. Q. And then you assole the FDT z-test in the symbol case, you gave deposition testimony in April of 2016; is that correct? A. Right. Q. And in the KBR matter, you gave deposition testimony in April of 2016; is that correct? A. Right. Q. And wan in the deposition for pril of 2				
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11 Q. But what you do know for sure is 12 that you gave deposition testimony in that 13 case in October and December of 2015; is 14 that right? 15 A. That's right. 16 Q. And then you gave testimony at an 17 evidentiary hearing in December of 2015, 18 correct? 19 A. That's right. 10 Q. And you list those facts here on 19 Exhibit 2 of Deposition Exhibit 95, 21 Exhibit 2 of Deposition Exhibit 95, 22 correct? 23 A. Right. Yes. 24 Q. Now, you recall that you used an FDT 25 z-test in the Petrobras matter, correct? 25 z-test in the Petrobras matter, correct? 26 List fair to say that exactly. 27 A. I wouldn't say that exactly. 28 I would say it's a reasonable inference from what I know about from when 10 I started using it, but I would have to check to see for sure. 29 Q. Is it fair to say that you're just not sure whether you used the FDT z-test in the Symbol 18 Technologies matter? 29 A. I'm not 100 percent sure. That's correct. 20 A. I'm not 100 percent sure if I had the documents in front of me to 20 case or correct. 21 I mean, I would be 100 percent sure if I had the documents in front of me to 20 case. Correct? 21 A. Right. 22 A. Right. 23 A. Right. 24 A. Right. 25 A. Right. 26 A. Right. Co. And in the KBR matter, you gave deposition testimony in April of 2016; is that right? 26 A. Right. 27 A. Right. 28 A. Right. 29 A. Right, and I just want to I'll yes, that's crue. 29 The memory that you used the FDT test in the Symbol 18 that correct? 20 Storrect. 21 I mean, I would have to check the 22 without looking at the document? 23 A. Right. 24 A. Right. 25 A. Right. 26 A. Right. 27 A. Right. 28 A. Right. 29 A. Right. correct? 29 The anal I just want to I'll yes, that's crue. 29 The anal I just want to I'll yes, that's crue. 20 Storrect. 21 Steven P, Feinstein, Ph.D 22 the test, but I would have to check the 22 way or another, as you sit here today, it's your memory isn't perfect. I mean, I believe I used 20 A. I memory that you ded the FDT test in the Symbol 18 the form of the in reperts of the form				
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	Dana 24		Dana 25
	Page 34		Page 35
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	but I do think I addressed market	2	A. Well, like I said earlier, one test
3	efficiency for other purposes. And I do	3	is, rather than using the formal
4	believe my analysis was consistent with the	4	statistical z-test, I test whether the
5	analysis I had done for Petrobras earlier.	5	incidence of statistical significance
6	Q. But you just don't recall, as you	6	within the news sample is itself
7	sit here today, whether you used an FDT	7	significant, is itself unlikely under an
8	z-test or not?	8	assumption of market inefficiency or only
9	A. If I if you show me the reports,	9	random volatility causing the stock price
10	I can tell you for sure, if I had the	10	to move.
11	reports.	11	I would use a binomial distribution
12	I mean, if you asked me any other	12	test. If we know that 5 percent of stock
13	time when I can look at my reports, that's	13	returns are appear to be significant,
14	what I would do is I would give you a	14	what's the likelihood under that so
15	definitive answer based on what's written	15	there's a 5 percent chance of significance,
16	down. But just from memory, it's you	16	and a 95 percent chance of nonsignificance
17	know, I'm reluctant to do so.	17	based on random volatility alone, what's
18	Q. Now, the ARCP case and the LSB case	18	the probability of, let's say, having four
19	and the RSO case, those matters, did you	19	out of nine events being statistically
20	use the FDT z-test in those matters? Do	20	significant given the binomial
21	you know?	21	distribution?
22	A. Or some variant of the collective	22	
23	test.	23	So instead of using the z-test as the underlying statistical driver, I used
24	Q. What are variants of the collective	24	
25	tests?	25	the binomial test, which is legitimate. It's a variant.
23	tests?	23	its a variant.
	D 26		
			Daga 27
	Page 36		Page 37
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2		2	
2 3	Steven P, Feinstein, Ph.D	2 3	Steven P, Feinstein, Ph.D
2 3 4	Steven P, Feinstein, Ph.D And the other one is another test	2 3 4	Steven P, Feinstein, Ph.D Q. In this case, you didn't use an
2 3 4 5	Steven P, Feinstein, Ph.D And the other one is another test is to test whether the dispersion of stock	2 3 4 5	Steven P, Feinstein, Ph.D Q. In this case, you didn't use an Ansari-Bradley test?
2 3 4 5 6	Steven P, Feinstein, Ph.D And the other one is another test is to test whether the dispersion of stock returns in the news sample is significantly	2 3 4 5 6	Steven P, Feinstein, Ph.D Q. In this case, you didn't use an Ansari-Bradley test? A. Right.
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Page 38 Page 39 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D. 1 2 it's 50 percent one and 50 percent the 2 A. Well, distribution is a continuous 3 3 other, and that's all there is to the distribution. The range of outcomes is 4 distribution. 4 continuous. 5 5 With the statistical significance of Like, a return could be 0 or .1 or 6 6 a stock return under the assumption of .2. It's in every point in between. A 7 market inefficiency, every -- by design, 7 continuous range of outcomes is possible 8 8 every return would have a distribution with a normal distribution. 9 of -- it would appear to be statistically 9 The binomial distribution is 10 10 significant. It would be in the 5 percent discreet. There's only two outcomes, yes 11 extreme; tails 5 percent of the time, thus 11 or no, heads or tails, significant or 12 heads as a 5 percent probability, and tails 12 nonsignificant. 13 would be -- it's in the middle of the 13 Q. Are there any statistical techniques 14 distribution away from the tails, 95 14 that allow a statistician to adjust a 15 percent of the time. 15 binomial distribution to approximate a Q. Are you familiar with an expression 16 16 normal distribution? 17 "normal distribution"? 17 A. Exactly the way you said it, no. 18 18 But I think I know what you're A. Yes. 19 getting at. O. What's a normal distribution? 19 A. That's the distribution where the 20 20 In a repeated experiment, the 21 histogram conforms to the bell-shaped curve 21 binomial converges into -- the cumulative 22 that most of us are familiar with. 22 statistics of a binomial converge to normal 23 O. So what's the difference between a 23 under certain circumstances. 24 binomial distribution and a normal 24 Q. And so that would require testing on 25 distrubution? 25 a larger population for a binomial Page 40 Page 41 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 1 2 distribution to approach the normal 2 no problem. 3 distribution? 3 But depending on the nature of the 4 4 data and the null hypothesis and the sample A. Yes. 5 Q. And when --5 size and the results, it may or may not be 6 6 A. A larger number of observations. necessary. 7 Q. And when a smaller number of 7 I ran diagnostics and found it was 8 observations are used -- strike that. 8 not an issue in this case. 9 When a smaller number of 9 Q. What diagnostics did you run in this 10 10 observations are made, are there any case? 11 11 statistical techniques that statisticians A. Well, I did that one. 12 use to adjust for the fact that there are a 12 You mean in running the FDT test? 13 13 smaller number of observations? Q. Yes. A. Well, I did -- I ran the test 14 A. It depends on what the test is. It 14 15 consistent with the way it was described in 15 really depends on which test is being the literature. But I did run the Fisher's 16 applied and the nature of the distributions 16 17 17 under the null hypothesis. Sometimes it's exact test to see if there was an issue 18 18 necessary; sometimes it's not. with small sample, and there wasn't. 19 Q. What about in the context of an FDT 19 I can't recall others that were 20 20 z-test? necessary. 21 A. There are diagnostics that can be 21 Q. What literature are you referring 22 22 run to determine whether there's an impact to? 23 of a relatively small population, something 23 A. Well, two articles, one by Michael like the Fisher's exact test, which I did Hartzmark on the subject, and then one by 24 24 25 run and the diagnostic indicated there was 25 the FDT original study, and then actually

Steven P, Feinstein, Ph.D 1	
textbooks on the z-test, in general, that I, over my career, relied on and learned from. Q. Was it your intent to run an FDT test consistent with the methodology used by FDT in their article their FDT article? A. I'd have to I don't think they differed in any material way. Q. Are you aware of any immaterial way. A. Again, just based on recollection but what I ran is appropriate and consistent with the statistics literature and defensible, given the null hypothesis and the sample size and the distribution. But the general framework is the Selection, was it your intent to run the Selection, was it your intent to run the FDT z-test in this case using the same methodology that the FDT authors used in the FDT article? A. I'd have to I don't think they differed in any material way. Q. Are you aware of any immaterial way in which they differed, putting aside event selection? A. Again, just based on recollection but what I ran is appropriate and consistent with the statistics literature and defensible, given the null hypothesis and the sample size and the distribution. There may have been some issues with the diagnostic for small sample. There may have been some issues with There may have been some issues with the diagnostic for small sample. There may have been some issues with the diagnostic for small sample. There may have been some issues with the diagnostic for small sample. There may have been some issues with the diagnostic for small sample. There may have been some issues with the diagnostic for small sample. There may have been some issues with the diagnostic for small sample. There may have been some issues with the diagnostic for small sample. There may have been some issues with the diagnostic for small sample. There may have been some issues with the diagnostic for small sample. There may have been some issues with the diagnostic for small sample. There may have been some issues with the diagnostic for small sample. There may have been some issues with the diagnostic for small sample. Th	ys
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9 A. Not entirely consistent. I thought 10 there were some issues with their event 11 selection methodology, so I refined that. 12 But the general framework is the 13 same. 14 Q. Putting aside the issue of event 15 selection, was it your intent to run the 16 FDT z-test in this case using the same 17 methodology that the FDT authors used in 18 the FDT article? 19 A. No. I mean, I don't blindly follow 20 their example. I run what I think is 20 but what I ran is appropriate and 20 consistent with the statistics literature 21 and defensible, given the null hypothesis 21 and the sample size and the distribution. 21 There may have been some issues with the 22 diagnostic for small sample. 23 There may have been some issues with the 24 diagnostic for small sample. 25 There may have been some issues with the 26 respect to bootstrapping, which I know that 27 Michael Hartzmark paid some attention to the strick of those issues 28 apply in any material way to this case. 38 Q. Now, you earlier testified that you	
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methodology that the FDT authors used in the FDT article? 18 the FDT article? 19 A. No. I mean, I don't blindly follow their example. I run what I think is 17 Michael Hartzmark paid some attention to but I don't think either of those issues apply in any material way to this case. 20 Q. Now, you earlier testified that you	
the FDT article? 18 but I don't think either of those issues 19 A. No. I mean, I don't blindly follow 20 their example. I run what I think is 18 but I don't think either of those issues 29 apply in any material way to this case. 20 Q. Now, you earlier testified that you	
A. No. I mean, I don't blindly follow their example. I run what I think is 20 apply in any material way to this case. Q. Now, you earlier testified that you	
their example. I run what I think is 20 Q. Now, you earlier testified that you	
21 appropriate and detensible, and that 8 what 21 fail the Fisher 8 exact test, which is a	
22 I did here. 22 diagnostics test, in this matter; is that	
Q. Well, in what ways did your FDT 23 correct?	
24 z-test differ from the FDT z-test run by 24 A. Right.	
the FDT authors in the FDT article, putting 25 Q. Do you mention the Fisher's exact	
Page 44 Page	.5
1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D	
2 test in your report? 2 A. The results that I observed are	
A. No, because it was immaterial. I 3 robust and well-founded in the results of	
4 mean, it turned out to be irrelevant. 4 the test.	
5 It's it was a check. It was a 5 Q. Well, is the Fisher's exact test a	
6 diagnostic. And it was it indicated no 6 statistical test?	
7 issues. 7 A. Yes.	
8 Q. Did you provide counsel for OPERS 8 Q. And does it yield numbers?	
9 with any of your Fisher's exact test 9 A. Yes.	
10 calculations? 10 Q. And those numbers what were the	se
A. I'm not sure. I may have run these 11 numbers?	
tests these diagnostics subsequent to 12 A. I don't recall. I know that they	
submitting the report, confirming what I 13 were just not over the threshold to	
originally knew, which is that it wasn't an 14 indicate any issue with sample size.	
issue here, in which case then it would not Q. Do you have a record of the tests	
have been provided if it was run subsequent 16 the Fisher's exact test that you ran?	ı
to the production. 17 A. Yes.	
Q. As you sit here today, do you know whether or not you ran the Fisher's exact 19 Q. And did you run any other diagnostics tests, other than the Fisher's	
\mathcal{L}	
1	
A. No, no. But I did run it, and I 22 well to see if four out of nine is statistically significant under a binomial	
Q. Well, what were the results of the 24 distribution. I'm pretty sure I would do	
25 Fisher's exact test? 25 that. And confirmed that whichever	
Time o chact test.	

Page 46 Page 47 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 2 statistical test was applied, the results 2 Q. Do you know whether or not you ran 3 3 would be the same. the binomial test before or after you 4 4 Four out of nine is a very extreme finalized and signed your report in this 5 result under the assumption that 5 6 information is not causing the stock price 6 A. I'm pretty sure I would have run 7 7 to move, therefore, you can reject the that before. 8 8 assumption reasonably that information has Q. And you didn't provide the 9 9 calculations that you ran in the binomial no effect on the stock price. 10 10 Q. As you sit here today, do you know test to OPERS counsel; is that correct? 11 one way or another whether you actually ran 11 A. Well, I directed my staff to produce 12 the binomial test? 12 everything. But this is something -- I 13 13 A. I'm quite sure I did, as a guess if you don't have it, then you don't 14 diagnostic check. 14 have it. We could provide it. Q. And do you still have the results of 15 15 Q. You didn't mention the binomial test 16 16 that test? in your report; is that correct? 17 17 A. No. It wasn't necessary. It's --A. Most likely. Possibly. like I said, it's a diagnostic. It's a 18 O. And do you know what the numerical 18 19 outcome of that test was? 19 check to see if there's any issues with the A. I know the qualitative result, which 20 20 report. 21 is that the results are robust, that the 21 It's almost like proofreading to see 22 result is confirmed. The conclusion I drew 22 if there's anything that needs to be 23 23 from the test is correct. considered. And nothing needed to be 24 The specific test statistic and the 24 considered. Nothing additional needed to 25 P value, I don't recall that. 25 be considered. Page 48 Page 49 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D. 2 Q. Well, you discussed the binomial 2 rebuttal. If it's the kind of issue that a 3 test in other expert reports that you've 3 defense expert is concerned with -- and 4 4 authored, correct? frankly, they should know that they 5 5 A. Well, usually it's one or the other. shouldn't be concerned with it, given the 6 6 Usually I would use the z-test or the degree of significance that these results 7 binomial. They're conceptually similar; 7 have affiliated with -- but if it's 8 8 very similar. something that they're concerned about, 9 Q. Have you ever, previously in a case, 9 then in a rebuttal, I might say, all right, 10 10 run both a z-test and a binomial test? if you want to see the Fisher's exact test 11 11 A. Again, you're asking me, from results and if you can't run them yourself, 12 recollection, all of my prior reports. 12 here they are. 13 13 I would guess that I did not, It's not usually something I would 14 because they're so similar that it's not 14 present in an opening report because it's 15 necessary to run them both. 15 not hard to infer from the degree of 16 But I can imagine that maybe 16 significance of the results that it's not a 17 17 sometime it may have been mentioned both problem. 18 18 times. But it's usually not necessary, and That what the Fisher's exact test 19 usually I would advise against it. 19 might identify as a problem is simply not a 20 20 problem in this -- with these -- with these Q. Why is it -- strike that. 21 You've discussed the Fisher's exact 21 22 22 test in prior reports, correct? Q. Is it your standard practice to run 23 A. I may have. 23 a Fisher's exact test in connection with Q. And in those --24 24 conducting an FDT z-test? A. I mean, usually, it would be in a 25 25 A. Generally, only if there's some

Page 50 Page 51 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 2 doubt; but not, generally, if there's no 2 A. Well, not exactly. I mean, not 3 3 doubt. exactly following their methodology step by 4 4 Q. Now, what is -- what is the title of step, but motivated in addressing the 5 5 the Michael Hartzmark article that you issues as in a manner that's consistent 6 6 referenced earlier, if you recall? with what's in the literature. 7 A. I don't know. I don't recall. 7 O. Now, you mentioned earlier issues of 8 8 Q. Is it listed in your report or bootstrapping and issues of small samples. 9 9 declaration? Do you know? Do you recall that? 10 10 A. Well, it's not something I relied A. You brought it up and I answered 11 11 upon specifically for this report or for your questions, yes. 12 the declaration. 12 Q. I don't -- I don't believe I brought 13 13 It's background literature up bootstrapping. But regardless, no need 14 supporting the use of the model. 14 to quibble. What are issues of bootstrapping? 15 (Witness reviews document.) 15 16 Let me see. 16 A. Bootstrapping is a way of testing 17 17 empirically whether the distribution of the Q. I --18 A. Yes, it's -- this document -- the 18 data conforms to what you -- what the 19 declaration doesn't have a reviewed and 19 assumptions of the distribution are in your 20 relied upon list, so... 20 testing algorithm. 21 Q. Now, it's your memory that you tried 21 Q. And did you do anything in this case 22 to conduct your FDT z-test in this case 22 to address or analyze issues of 23 23 consistent with the way that Dr. Hartzmark bootstrapping? 24 describes it in his article; is that fair 24 A. Again, what -- I'm not sure. I'm 25 to say? 25 not sure. Page 52 Page 53 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 I mean, it's -- I have -- you know, 2 was powerful enough because there was a 3 I work with the staff, and we have general 3 very strong rejection of the null 4 procedures to identify whether, you know, 4 hypothesis, that information doesn't move 5 5 to do diagnostics on tests to see if there the stock price. 6 6 are any issues that need to be addressed. So just to hone in on and give you 7 It's a matter of course that we run 7 an answer specifically to your question, 8 8 diagnostics to see if there are no issues. small sample issues are that the test may 9 9 have low power because of the small sample, No issues were brought to my attention. So 10 10 I'm pretty sure that the general procedures and you may get a nonrejection of a null 11 11 were followed and that it was just not an hypothesis, not because the -- whether the 12 issue that needed to be addressed. 12 hypothesis is true or false, but just the 13 13 Q. What are issues of small samples? test itself is weak because of the small 14 14 A. Sometimes -- usually the issue with sample. That was not a problem here. 15 15 Q. In your declaration, you discuss a small sample is that the power of the test 16 is low; that the power of the test to 16 Brav and Heaton article about how event 17 17 reject a null hypothesis when the null studies may sometimes have low power; is 18 18 hypothesis should be rejected, the that correct? 19 probability of rejecting the hypothesis is 19 A. That's right. 20 20 Q. And is it fair to say that the low. So the test has low power because 21 you're not the looking at enough data. 21 concerns raised in that article don't apply 22 to this case because, in your view, the 22 It just wasn't a problem here. With 23 looking at all the data in the class period 23 event study and the z-test you conducted 24 and the nine events in the collective event 24 here don't exhibit those -- that issue? 25 25 study, we know that the power of the test A. Yes, that's right.

	Page 54		Page 55
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Q. The low power issue is not an issue	2	it's not an event study.
3	for the Freddie Mac case; fair to say?	3	Q. Is an Ansari-Bradley test an event
4	A. That's what I concluded from the	4	study?
5	data and the statistical results.	5	A. Again, it's a component of a variant
6	Can we take a short break?	6	of an event study, but in itself, it's not
7	MR. FRANK: Sure.	7	an event study.
8	THE VIDEOGRAPHER: We are off	8	Q. Is an F-test an event study?
9	the record. The time is 9:27.	9	A. Same answer.
10		10	Q. And for the binomial test, that's
11	(Recess taken from 9:27 a.m.	11	not itself an event study, it's a component
12	to 9:40 a.m.)	12	of a variant of an event study; is that
13		13	correct?
14	THE VIDEOGRAPHER: We are back	14	A. Exactly right.
15	on the record at 9:40.	15	MR. FRANK: Let's mark the
16		16	report.
17	BY MR. FRANK:	17	
18	Q. Dr. Feinstein, is a Fisher's exact	18	(Exhibit No. 96 marked for
19	test an event study?	19	identification.)
20	A. No.	20	
21	Q. Is a binomial test an event study?	21	BY MR. FRANK:
22	A. No.	22	Q. Dr. Feinstein, I've put before you a
23	Q. And	23	document that's been marked as Exhibit 96.
24	A. It's a component of one version of	24	What is Exhibit 96?
25	the collective event study. But by itself,	25	A. This is the report on market
	Page 56		Page 57
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	efficiency that I submitted in this matter.	2	can easily be inferred from the results.
3	It's a report on market efficiency, but it	3	I mean, that's an opinion. It's
4	also includes a section on damages model.	4	not it's what's explicated in the
5	Q. This is your report in this case,	5	report, but it is an opinion I have and it
6	right?	6	relates to this case.
7	A. Yes.	7	But the only reason I expressed it
8	Q. And all of your opinions in this	8	is because you asked questions about it.
9	case are set forth in this report; is that	9	BY MR. FRANK:
10	fair to say?	10	Q. Well, there's no if you were to
11	A. Yes.	11	testify in this case at trial about your
12	Q. You didn't leave any opinions that	12	opinions in this case, I would know in
13	you have about market efficiency in this	13	advance what your opinions are because
14	case out of the report, right?	14	they're set forth in this report, right?
15	A. Correct.	15	A. Right. But as today you asked
16	Q. And you didn't leave any opinions	16	questions related to the report, related to
17	you have about how to construct a damages	17	the case that are not in the report, and I
18	model out of this report; is that right?	18	answered them.
19	MR. MARKOVITS: Objection.	19	So to the extent that that could
20	A. Correct. Well, I hesitated for a	20	happen, the to the extent that it
21	moment because some of what we discussed	21	happened today, I imagine it could happen
22	this morning are opinions that I have that	22	again.
23	pertain to this case and are not in the	23	Q. So it's fair to say that
24	report, things like that the results are	24	MR. MARKOVITS: Can I object.
25	robust enough such that certain diagnostics	25	Can I just interrupt. I'm sorry to
			· · · · · · · · · · · · · · · · · · ·

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1		1	
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	interrupt.	2	as of right now are in this report.
3	MR. FRANK: Sure.	3	Q. Now, we've discussed that you
4	MR. MARKOVITS: I would like	4	performed two tests in connection with
5 6	to object with regard to the testifying at	5 6	assessing the fifth factor of the Cammer
7	trial, because the opinion he gives with	7	case, right?
	regard to damages is with regard to the		A. Yes.
8 9	ability to determine damages on a class-wide basis.	8	Q. Okay. Now, which test did you
10		9 10	perform first?
11	Were he to testify at trial, he	11	A. Oh, the single the single-event
12	would have conducted a damage analysis by that time, and he would be testifying in	12	event study.
13		13	And by that, I mean that it's an
14	that regard, not with regard to this	14	event study focused on an event. In this
15	opinion. BY MR. FRANK:	15	case, there's a single event.
16		16	Q. And now, prior to performing the
17	Q. Is it fair to say that you have opinions about market efficiency about	17	single-event event study, you reviewed Dr. Hallman's report dated August 16, 2012,
18	the market efficiency of Freddie Mac's	18	correct?
19	stock that are not in this report?	19	A. Yes.
20	A. As of this juncture right now, I do	20	Q. And to the best of your
21	not have opinions about the efficiency of	21	recollection, you reviewed that report
22	the market of Freddie Mac stock that are	22	when?
23	not in this report.	23	A. Sometime within the month or two
24	All the opinions I have about	24	before December 16, 2016.
25	Freddie Mac common stock market efficiency	25	Q. Prior to performing the single-event
23	Freddie Wae common stock market emelency	25	Q. Thor to performing the single-event
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	event study, you reviewed Dr. Bajaj's	2	select the events for single-event event
3	report dated December 14, 2012, correct?	3	studies, and sometimes it's not.
4	A. That's right.	4	Q. Dr. Feinstein, you have let's
5	Q. That was approximately within the	5	back up for a second.
6	month or two before December 16 of 2016,	6	There's a couple of phases
7	right?	7	associated with conducting an event study,
8	A. (Witness reviews document.)	8	correct?
9	Yes.	9	A. Yes.
10	Q. Now, you were aware that Dr. Hallman	10	Q. Or steps, so to speak, right?
11	conducted an event study also, correct?	11	1 1 1
			A. KIRIIL
12	A. Yes.	12	A. Right. O. What's the first step?
	A. Yes.	12 13	Q. What's the first step?
12	A. Yes.Q. You were aware that Dr. Hallman	13	Q. What's the first step?A. Well, I mean, certain steps can be
12 13 14	A. Yes. Q. You were aware that Dr. Hallman conducted an event study based on the	13 14	Q. What's the first step? A. Well, I mean, certain steps can be done in various orders. But initially, you
12 13	A. Yes. Q. You were aware that Dr. Hallman conducted an event study based on the testing of dates that Freddie Mac released	13	Q. What's the first step? A. Well, I mean, certain steps can be done in various orders. But initially, you gather the data and you run a market model
12 13 14 15	A. Yes. Q. You were aware that Dr. Hallman conducted an event study based on the testing of dates that Freddie Mac released earnings results, right?	13 14 15	Q. What's the first step? A. Well, I mean, certain steps can be done in various orders. But initially, you gather the data and you run a market model to assess what the residual returns are,
12 13 14 15 16	A. Yes. Q. You were aware that Dr. Hallman conducted an event study based on the testing of dates that Freddie Mac released earnings results, right? A. That's right.	13 14 15 16	Q. What's the first step? A. Well, I mean, certain steps can be done in various orders. But initially, you gather the data and you run a market model to assess what the residual returns are, which is what are the returns after
12 13 14 15 16 17	A. Yes. Q. You were aware that Dr. Hallman conducted an event study based on the testing of dates that Freddie Mac released earnings results, right? A. That's right. Q. That's a common way to conduct an	13 14 15 16 17	Q. What's the first step? A. Well, I mean, certain steps can be done in various orders. But initially, you gather the data and you run a market model to assess what the residual returns are, which is what are the returns after controlling for market and sector effect.
12 13 14 15 16	A. Yes. Q. You were aware that Dr. Hallman conducted an event study based on the testing of dates that Freddie Mac released earnings results, right? A. That's right. Q. That's a common way to conduct an event study, isn't it?	13 14 15 16 17 18	Q. What's the first step? A. Well, I mean, certain steps can be done in various orders. But initially, you gather the data and you run a market model to assess what the residual returns are, which is what are the returns after controlling for market and sector effect. Actually, my first step is I read
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	of time at issue.	2	is the third amended complaint; is that
3	That's my first step.	3	right?
4	But then construction of the	4	A. Yes.
5	regression model, and then selection of	5	Q. You read that before you took any
6	events.	6	other steps in connection with your event
7	Q. Now, before you construct the	7	study, right?
8	regression model or select events, you do	8	A. That's right.
9	some reading; is that correct?	9	Q. What else in addition to the
10	A. That's right.	10	complaint, analyst reports, newspaper
11	Q. And among other things, you just	11	articles, the reports of Dr. Bajaj and
12	testified that you read analyst reports and	12	Dr. Hallman did you read before doing
13	newspaper articles; is that right?	13	anything else in connection with your event
14	A. That's right.	14	study?
15	Q. And all of the analyst reports and	15	A. Company press releases and
16	newspaper articles that you read are	16	conference call transcripts.
17	identified in your report; is that	17	Q. Those are all listed in your report
18	correct?	18	as well?
19	A. Yes. Right.	19	A. Right.
20	Q. Now, you read other things in	20	Q. Anything else that you reviewed?
21	addition to analyst reports and newspaper	21	A. I think that's it.
22	articles, right?	22	Q. The next step is that you construct
23	A. That's right.	23	a regression model; is that right?
24	Q. For example, you read the operative	24	A. Actually actually, no.
25	complaint in this matter, which I believe	25	The next step is selection of events
	Page 64		Dana CE
	3		Page 65
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2		2	
2	Steven P, Feinstein, Ph.D to determine what events ought to be tested, what events in the life of the	2	Steven P, Feinstein, Ph.D often a good selection criterion to take all event studies and to analyze the group
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2 3 4 5 6 7	Steven P, Feinstein, Ph.D to determine what events ought to be tested, what events in the life of the company over the course of the analysis period would be good candidates for an event study, based on the news and based on valuation principles.	2 3 4 5 6 7	Steven P, Feinstein, Ph.D often a good selection criterion to take all event studies and to analyze the group collectively because, generally, earnings announcement dates have a greater flow of information than nonearnings announcement dates.
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Page 66 Page 67 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 or very negative news that arrived to the 2 A. I meant earnings announcements. To 3 3 marketplace in a manner that reasonably take all earnings announcements and use all 4 would elicit a statistically significant 4 earnings announcements as the group of high 5 5 stock price return, making it, therefore, a information flow events. 6 good candidate for a single-event event 6 And if you do that, you don't need to examine each earnings announcement to 7 7 study. 8 8 So I wouldn't select events the way determine whether there was unconfounded, 9 that Dr. Hallman did, which is to pick all 9 highly material, highly impactful 10 10 earnings announcement dates without any eye information that came out on each of those 11 towards what information came out on those 11 12 dates for use in a single-event event 12 You would just -- you select them 13 13 and keep them isolated in a group because study. 14 14 you know that, in general, earnings By single-event event study, I mean 15 15 an event study focused each time it's run announcement dates have -- on average, have 16 16 on a single event. a higher information flow than nonearnings 17 Q. Well, let me break that down a 17 announcement dates. 18 18 little bit, in part because I think you So yes, you're right, I misspoke. I 19 actually misspoke, and I want your 19 meant earnings announcements. 20 20 testimony to be what you actually believe. But that's not what Dr. Hallman did, 21 You said, for a collective event 21 and that's not what I did either. 22 study, it's often a good selection criteria 22 Q. What do you mean by "dates with to take all event studies and to analyze 23 23 higher information flow"? 2.4 the group collectively because -- and then 24 A. Well, the literature says that 25 you went on. 25 earnings announcement dates are dates in Page 68 Page 69 1 1 Steven P, Feinstein, Ph.D. Steven P, Feinstein, Ph.D 2 which the company speaks to the 2 case, I found one such event. Q. When did you decide to do a 3 marketplace. 3 4 4 single-event event study? So compared to a more typical day, 5 it's day in which more information is going 5 A. When I took the case. 6 6 O. Now -to be arriving to the marketplace -- more 7 information about the company is likely to 7 A. It's the -- the traditional event 8 8 be arriving to the marketplace about the study is an important component of a market 9 9 efficiency analysis. company. 10 10 Q. What other cases -- strike that. And if the dynamics of the stock 11 11 price on those high information flow dates In what other cases have you 12 is different from the dynamics on more 12 conducted a single-event event study? 13 13 typical low information flow dates, that A. I mean, there has to be good reason 14 not to, but in most other cases I have. 14 proves that information matters, which is 15 15 informational efficiency, which is what the In Petrobras, I didn't. And I 16 courts care about in cases like this. 16 explained in the Petrobras case why I 17 didn't and used a collective test instead. 17 Q. Now, at some point in time, did you 18 18 determine that you wanted to do an event But when I can, I do it. And it's 19 study based on a single date? 19 not -- what I mean by when I can is, I 20 20 A. Well, I set out to do what we call don't get to choose the history of the 21 single-event event studies. I looked for 21 company. I don't get to choose what 22 22 announcements the company made. I have to ideal candidates to use or appropriate 23 candidate events to use for the traditional 23 deal with the history of the company as it 24 event study. 24 is. 25 And because of the nature of this 25 So if the history of the company and

	D 70		D 71
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	the nature of its events make it possible	2	ran exclusively the collective event test,
3	and appropriate to do a single you know,	3	which is why the judge focused on that.
4	either one or a series of single-event	4	And in the vast majority, if not all
5		5	
	event studies, I'll run them.		other cases, I have run the traditional
6	Q. Did you do a single-event event	6	event study focused on individual events.
7	study in the CVS Caremark case?	7	Q. So is it your view that you, in the
8	A. Can I see the report, please?	8	vast majority of cases, have run
9	Q. You don't remember offhand?	9	single-event event studies?
10	A. Correct.	10	A. Yes, and perhaps also the collective
11	Q. Do you know whether or not you did a	11	test.
12	single-event event study in the JP Morgan	12	Q. And when you what do you mean
13	case?	13	when you say "single-event event study"?
14	A. I see that you have the reports	14	A. The traditional event study where I
15	there. If you show me, I can answer the	15	focus each time the methodology is run,
16	question definitely.	16	it's focusing on the statistical
17	Q. Well, I'll been honest. I'm not	17	significance of a the stock return that
18	trying to play games. We may mark these.	18	occurred in response or that occurred at
19	I'm hoping I'd love to do them faster	19	the on the day of a single event.
20	than slower, because I know you prefer this	20	Q. Did Dr. Hallman run a single-event
21	whole process to go faster than slower.	21	event study?
22		22	
23	So if you don't remember, you can	23	A. Yes, he did. He ran a series of them.
24	say that you don't remember. It's okay.	24	
25	We may get to them.	25	Q. I see. He ran a so he tested six
23	A. Well, I know that in Petrobras, I	23	dates, correct?
	D 70		D 7 O
	Page 72		Page 73
1	Page 72 Steven P, Feinstein, Ph.D	1	Page 73 Steven P, Feinstein, Ph.D
1 2		1 2	
	Steven P, Feinstein, Ph.D A. Right.	2	Steven P, Feinstein, Ph.D Q. Right.
2	Steven P, Feinstein, Ph.D		Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D A. Right. Q. And you called those single-event event studies because he ran a series of	2 3 4	Steven P, Feinstein, Ph.D Q. Right. A an improper choice of words,
2 3 4	Steven P, Feinstein, Ph.D A. Right. Q. And you called those single-event event studies because he ran a series of six single-event event studies; is that	2 3 4 5	Steven P, Feinstein, Ph.D Q. Right. A an improper choice of words, because I didn't do that in this case. I
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2 3 4 5 6 7	Steven P, Feinstein, Ph.D A. Right. Q. And you called those single-event event studies because he ran a series of six single-event event studies; is that correct? A. That's right.	2 3 4 5 6 7	Steven P, Feinstein, Ph.D Q. Right. A an improper choice of words, because I didn't do that in this case. I Q. Let's just be clear. You ran a z-test that was predicated
2 3 4 5 6	Steven P, Feinstein, Ph.D A. Right. Q. And you called those single-event event studies because he ran a series of six single-event event studies; is that correct? A. That's right. Q. Okay. All right. So let's just get	2 3 4 5 6	Steven P, Feinstein, Ph.D Q. Right. A an improper choice of words, because I didn't do that in this case. I Q. Let's just be clear. You ran a z-test that was predicated on nine dates, right?
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D A. Right. Q. And you called those single-event event studies because he ran a series of six single-event event studies; is that correct? A. That's right. Q. Okay. All right. So let's just get on the same page.	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D Q. Right. A an improper choice of words, because I didn't do that in this case. I Q. Let's just be clear. You ran a z-test that was predicated on nine dates, right? A. That examined information flow dates
2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D A. Right. Q. And you called those single-event event studies because he ran a series of six single-event event studies; is that correct? A. That's right. Q. Okay. All right. So let's just get on the same page. You, in this case, for your event	2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D Q. Right. A an improper choice of words, because I didn't do that in this case. I Q. Let's just be clear. You ran a z-test that was predicated on nine dates, right? A. That examined information flow dates versus noninformation flow dates, and the
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D A. Right. Q. And you called those single-event event studies because he ran a series of six single-event event studies; is that correct? A. That's right. Q. Okay. All right. So let's just get on the same page. You, in this case, for your event study as opposed to your z-test, you didn't run a series of single-event event studies, correct? A. Oh, I ran one. Q. You ran one? A. That's right, because I found one appropriate event candidate. Q. And in how many other cases have you run an event study based solely on one date without testing other dates? A. Well, in this one, I did test other dates. I tested the other dates by also	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D Q. Right. A an improper choice of words, because I didn't do that in this case. I Q. Let's just be clear. You ran a z-test that was predicated on nine dates, right? A. That examined information flow dates versus noninformation flow dates, and the information flow dates comprised nine dates. Q. Let's put the z-test aside. A. Okay. Q. Let's talk about the event study that you ran. A. Let's call that the traditional event study. Q. Well, I'm not sure it's a traditional event study. So why don't we call it the November 20 event study. Is that acceptable?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D A. Right. Q. And you called those single-event event studies because he ran a series of six single-event event studies; is that correct? A. That's right. Q. Okay. All right. So let's just get on the same page. You, in this case, for your event study as opposed to your z-test, you didn't run a series of single-event event studies, correct? A. Oh, I ran one. Q. You ran one? A. That's right, because I found one appropriate event candidate. Q. And in how many other cases have you run an event study based solely on one date without testing other dates? A. Well, in this one, I did test other dates. I tested the other dates by also running the collective event study.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D Q. Right. A an improper choice of words, because I didn't do that in this case. I Q. Let's just be clear. You ran a z-test that was predicated on nine dates, right? A. That examined information flow dates versus noninformation flow dates, and the information flow dates comprised nine dates. Q. Let's put the z-test aside. A. Okay. Q. Let's talk about the event study that you ran. A. Let's call that the traditional event study. Q. Well, I'm not sure it's a traditional event study. So why don't we call it the November 20 event study. Is that acceptable? A. Sure.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Steven P, Feinstein, Ph.D A. Right. Q. And you called those single-event event studies because he ran a series of six single-event event studies; is that correct? A. That's right. Q. Okay. All right. So let's just get on the same page. You, in this case, for your event study as opposed to your z-test, you didn't run a series of single-event event studies, correct? A. Oh, I ran one. Q. You ran one? A. That's right, because I found one appropriate event candidate. Q. And in how many other cases have you run an event study based solely on one date without testing other dates? A. Well, in this one, I did test other dates. I tested the other dates by also running the collective event study. Q. Well, let's I don't want to	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Steven P, Feinstein, Ph.D Q. Right. A an improper choice of words, because I didn't do that in this case. I Q. Let's just be clear. You ran a z-test that was predicated on nine dates, right? A. That examined information flow dates versus noninformation flow dates, and the information flow dates comprised nine dates. Q. Let's put the z-test aside. A. Okay. Q. Let's talk about the event study that you ran. A. Let's call that the traditional event study. Q. Well, I'm not sure it's a traditional event study. So why don't we call it the November 20 event study. Is that acceptable? A. Sure. Q. Because you ran that event study on
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D A. Right. Q. And you called those single-event event studies because he ran a series of six single-event event studies; is that correct? A. That's right. Q. Okay. All right. So let's just get on the same page. You, in this case, for your event study as opposed to your z-test, you didn't run a series of single-event event studies, correct? A. Oh, I ran one. Q. You ran one? A. That's right, because I found one appropriate event candidate. Q. And in how many other cases have you run an event study based solely on one date without testing other dates? A. Well, in this one, I did test other dates. I tested the other dates by also running the collective event study.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D Q. Right. A an improper choice of words, because I didn't do that in this case. I Q. Let's just be clear. You ran a z-test that was predicated on nine dates, right? A. That examined information flow dates versus noninformation flow dates, and the information flow dates comprised nine dates. Q. Let's put the z-test aside. A. Okay. Q. Let's talk about the event study that you ran. A. Let's call that the traditional event study. Q. Well, I'm not sure it's a traditional event study. So why don't we call it the November 20 event study. Is that acceptable? A. Sure.

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	A. Right.	2	have been three over the course of the
3	Q. Fair enough?	3	class period.
4	A. Right.	4	In this one, I found one.
5	Q. So the November 20 event study, that	5	Q. In some cases, there's zero
6	was an event study that was run on only one	6	appropriate dates to test, in your view,
7	date, right?	7	right?
8	A. Well, traditional event studies	8	A. For a traditional event study, yes.
9	always run on one date. You might run a	9	Q. In other cases, there are multiple
10	series of traditional event studies, but	10	dates to test; is that correct?
11	each time it will be on one date.	11	A. That's right.
12	Q. In other cases, you have run a	12	Q. And in other cases, you have tested
13	series of event studies; is that correct?	13	multiple dates, correct?
14	A. If the history of the company is	14	A. Yes.
15	such that there are more appropriate	15	Q. In this case, you tested only one
16	there are additional appropriate	16	date for your November 20 event study,
17	candidates, then I use all appropriate	17	correct?
18	candidates.	18	A. That's right.
19	In this case, I found one	19	Q. Have you ever, in any other case,
20	appropriate candidate.	20	
21		21	run an event study that tested only a
22	So in Petrobras, there were,	22	single date?
	essentially, zero for the traditional event	23	A. Well, like I said, Petrobras, it was
23	study. So I ran zero single-event event	23	zero.
24	studies there.		I don't recall. I think it's not
25	And in Groupon, I think there may	25	likely, but I don't recall for sure.
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	But if there's only one appropriate	2	reaction, because if, based on the news or
3	date to test, that's dictated by the	3	evaluation principles, you would expect the
4	history of the company, not by my choices.	4	stock price not to move, then observing it
5	Q. How do you determine what is an	5	later not to move doesn't either prove or
6	appropriate date to test?	6	disprove market efficiency.
7	A. Well, I have a section in the report	7	What you would need to assess market
8	about that.	8	efficiency is an event that should move the
9	Let me draw your attention to it.	9	market, and then you observe to see whether
10	(Witness reviews document.)	10	it did or did not move the market.
11	Paragraph 115. Well	11	That's how you test market
12	I look for dates that, based on the	12	efficiency.
13	nature of the news and based on evaluation	13	So the selection criterion the
14	principles, there was news that transpired	14	selection criteria are to look for events
15	that reasonably was of such magnitude, such	15	that where the news is important and
10	,		
	importance, arriving in an unconflicted or	I 16	arrived in a manner that was somewhat, you
16 17	importance, arriving in an unconflicted or unconfounded manner such that the arrival	16 17	arrived in a manner that was somewhat, you know, not mixed, somewhat unconflicted and
16 17	unconfounded manner such that the arrival	1	know, not mixed, somewhat unconflicted and
16 17 18	unconfounded manner such that the arrival of that news would reasonably elicit a	17 18	know, not mixed, somewhat unconflicted and unconfounded, such that, according to
16 17 18 19	unconfounded manner such that the arrival of that news would reasonably elicit a statistically significant stock price	17	know, not mixed, somewhat unconflicted and unconfounded, such that, according to valuation principles, it should move the
16 17 18 19 20	unconfounded manner such that the arrival of that news would reasonably elicit a statistically significant stock price reaction.	17 18 19	know, not mixed, somewhat unconflicted and unconfounded, such that, according to valuation principles, it should move the market a large amount over the threshold
16 17 18 19 20 21	unconfounded manner such that the arrival of that news would reasonably elicit a statistically significant stock price reaction. Only because I exantide determined	17 18 19 20 21	know, not mixed, somewhat unconflicted and unconfounded, such that, according to valuation principles, it should move the market a large amount over the threshold for statistical significance.
16 17 18 19 20 21 22	unconfounded manner such that the arrival of that news would reasonably elicit a statistically significant stock price reaction. Only because I exantide determined that it would reasonably elicit a	17 18 19 20 21 22	know, not mixed, somewhat unconflicted and unconfounded, such that, according to valuation principles, it should move the market a large amount over the threshold for statistical significance. Q. In other cases, you've selected
16 17 18 19 20 21 22 23	unconfounded manner such that the arrival of that news would reasonably elicit a statistically significant stock price reaction. Only because I exantide determined that it would reasonably elicit a statistically significant stock price	17 18 19 20 21 22 23	know, not mixed, somewhat unconflicted and unconfounded, such that, according to valuation principles, it should move the market a large amount over the threshold for statistical significance. Q. In other cases, you've selected earnings dates as appropriate dates to test
16 17 18 19 20 21 22	unconfounded manner such that the arrival of that news would reasonably elicit a statistically significant stock price reaction. Only because I exantide determined that it would reasonably elicit a	17 18 19 20 21 22	know, not mixed, somewhat unconflicted and unconfounded, such that, according to valuation principles, it should move the market a large amount over the threshold for statistical significance. Q. In other cases, you've selected

Page 78 Page 79 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 straightforward, unconfounded, unconflicted earnings date fit those criteria that I 3 3 just explained. manner or whether it was mixed, and whether 4 Q. Now, in this case, did you seek to 4 the news was of such importance relative, 5 5 determine whether there was more than one you know, on the basis of evaluation 6 6 principles that it should move the market. date that might be appropriate to test? 7 7 For the FDT test, all you need is a A. I did. 8 8 -- it's a more objective selection -- set Q. And you ultimately concluded that 9 9 of selection criteria. You need a rule, an there was -- that in the 330-day class 10 10 period, there was not a single other date objective rule that's replicable that that was appropriate to test? 11 11 identifies dates on which there was 12 A. That was my conclusion. I mean, to 12 substantially higher news flow of any kind 13 13 test in the traditional event study manner. without an eye towards whether each 14 There were lots of dates, as I did 14 individual date -- whether the news on each ultimately examine, that could be tested in 15 15 individual date itself was enough to move the collective manner. 16 the market price an amount above the 16 17 Q. Now, how is the criterion for 17 threshold for statistical significance. 18 18 choosing dates in what you call the The rule for the FDT test is a rule 19 19 traditional event study different from the that -- you pick a rule that's objective 20 20 criteria for choosing dates in the FDT and replicable that identifies higher news 21 z-test? 21 flow days. 22 22 Q. Is it fair to say that your A. So for the traditional event study, 23 23 selection of dates for the November 20 you've got to do an in-depth news analysis 2.4 24 on the event itself to determine what news event study was not objective and 25 came out and whether that news arrived in a 25 replicable? Page 80 Page 81 Steven P, Feinstein, Ph.D 1 1 Steven P, Feinstein, Ph.D 2 A. I think it was. I think it's unfair 2 A. Absolutely. I'm waiting to see what your experts come up with. If they say 3 to say it was not objective and replicable. 3 4 4 I think no reasonable person would other dates should have been tested, I'll 5 5 look at the news that came out on evaluate that. If I think they're right, 6 6 November 20 and say that that wasn't a I'll take that into account. 7 red-letter date in the life of this 7 But I don't think they'll find other 8 company, on the basis of evaluation 8 dates that should have been tested. 9 principles and on the basis of the news 9 Q. Well --10 10 that came out, regardless of whatever other A. The nature of this company -- the 11 11 events, such as a lawsuit or a complaint or nature of Freddie Mac, the nature of the 12 other people's reports, came out. 12 period in which we're talking about was 13 13 I think anybody coming into this -somewhat unique and caused it to not have 14 dates that -- event dates that were such 14 studying this company, studying this case, 15 15 regardless of what they did or did not that would be ideal for a market efficiency 16 read, would agree that November 20 was an 16 event study. 17 17 appropriate date for an event study because It did have dates that were ideal 18 18 it was momentous news that, according to for a collective event study, but I'm eager 19 evaluation principles, should have moved 19 to see what they come up with so that I can 20 20 the stock market -- the stock -- the market evaluate whether they're right or wrong. I 21 for that company's stock. 21 think they'll be wrong if they think there 22 22 Q. What about the other 329 days in the are other dates besides what I found. 23 class period? 23 O. What is it about the nature of 24 Was your decision not to select any 24 Freddie Mac that was unique that caused it 25 of those days objective and replicable? 25 to not to have event dates that were ideal

Page 83 Page 82 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 for a market efficiency event study? 2 other companies were facing and that they 3 3 A. People saw it as a bastion of safety had adequate analysis to analyze laws 4 in a turbulent market. 4 and -- loans and detect fraud, and that 5 5 Over this period of time, the they had adequate capital. 6 6 housing market was increasingly risky. It's on the marketplace. And that's 7 Other companies were -- they were suffering 7 why it made the company much more stable 8 8 as a result of that riskiness and that than other companies at that time. 9 9 turbulence in the marketplace. And people Q. So is it fair to say that in your 10 10 saw the government-sponsored enterprises as decision not to test dates other than 11 11 being more secure, safer, a bastion of November 20, 2007 in what you call your 12 safety. 12 traditional event study, you were relying 13 13 So, in fact, like the riskier the in part upon the allegations in the 14 rest of the market got, the safer by 14 complaint? 15 comparison Freddie Mac looked. 15 A. No. That's -- that misinterprets 16 That's essentially it. 16 what I just said. 17 It was a fortress is the way it was 17 I said that you can -- one easy 18 perceived, it's a fortress is the way the 18 place to consolidate the quotes that I'm 19 company portrayed itself. 19 referring to would be to look at the 20 20 Just read the complaint, and I did complaint. But what I also said was that I 21 and I know you did, too, but 21 cross-referenced those against the primary 22 cross-reference it with the primary 22 sources. 23 23 sources. Over and over again you have the I read the conference call 24 executives of the company saying that they 24 transcripts. I saw what the executives of 25 weren't facing the same kind of risks that 25 this company were telling the public. And Page 84 Page 85 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 2 that's what I mean. 2 the life of this company over the course of 3 I mean, if you want, you know, I 3 the class period. I read the news that 4 4 could have said why don't we just go back came out on those days. I read the analyst 5 5 and read the conference call transcripts, reports that reported on the news that came 6 6 but relevant excerpts are in the complaint. out on those days. 7 So it's not the fact that there's an 7 And there's -- there were times when 8 8 allegation of securities fraud that matters there was big announcements, but they would 9 here. I'm just talking about how the 9 be confounded or conflicted. 10 10 company portrayed itself. If you look at the analyst reports 11 11 Q. And you think that any other that came out after each of the earnings 12 economist who was faced with the task of 12 announcements, except for the last one, 13 13 having to conduct what you call a they all say mixed results. They all say, 14 14 traditional event study would have excluded there's some good news and there's some bad every date from the class period other than 15 15 news, or the company posted a loss but the 16 November 20, 2007; is that fair to say? 16 loss was expected. 17 So, the analysis I did -- I went 17 A. I -- well, I don't know what other 18 through every single day. I went through 18 economists are going to do. That's why I 19 said I'm eager to see what your economists 19 the news on every single day, and I did not 20 20 do. find, except for the last day of the class 21 But I think that if they arrive at a 21 period, a good candidate for a single-event 22 22 decision that differs from mine, that they event study. 2.3 23 Q. Well, you reviewed Dr. Hallman's would be wrong. And I'll tell you why I believe 24 24 report, correct? 25 that. I did go through every single day in 25 A. I did.

Page 87 Page 86 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 Q. Who's Dr. Hallman? 2 determine whether it was an appropriate 3 3 A. He is a -- I could read his candidate to even test. 4 4 credentials out of his report if you would And for those first four, and 5 5 like, but he serves as an expert in this arguably the fifth, of the earnings 6 6 announcements, I saw, and I believe other 7 7 economists would see as well, that the news O. And Dr. Hallman chose to examine six 8 8 dates for his event study, correct? was mixed or expected such that a 9 9 statistically significant reaction was not A. Right. 10 10 Q. And you believe, as you sit here to be expected. 11 today, that that was a mistake; is that 11 Q. And is it fair to say that you 12 fair to say? 12 exercised your judgment in determining 13 whether or not the news was mixed? 13 A. Well, he chose a different approach. 14 What his approach was, is to use all 14 A. It's not just judgment. If you look 15 event -- all earnings announcements, and 15 at the analyst reports, the word "mixed" is then after observing that four of the six 16 16 right in them. 17 were not significant, seek to explain why 17 Q. For every one of the dates you 18 they ought to have not been significant. 18 rejected? 19 That's a legitimate approach in some 19 A. No. For the analyst reports on the 20 20 context. I just don't believe it's the earnings announcement dates. 21 best approach or the best approach to use 21 Q. But you excluded 329 dates from your 22 22 event study, correct? in this case. 23 23 A. Right. Some of those had no I think what would have been better 24 is to select -- to read the news first 24 relevant or no strongly material news. 25 before running the event study and 25 Most of them had no strongly material Page 88 Page 89 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D. 2 news. 2 Q. From your perspective and your 3 Q. Some of them did have material news; 3 opinion, there was only one appropriate 4 4 date to test in what you call the more is that fair to say? 5 5 A. But not of the kind that you would traditional event study? 6 6 expect necessarily would have -- exantide A. There was one most appropriate date, 7 would have statistically significant impact 7 and the methodology that I chose, which I 8 8 on the stock price. believe is the best methodology for this 9 I mean, it would have impact on the 9 case, identified one such event. 10 10 stock price, and you would detect it in a Q. Were there other appropriate dates? 11 11 collective event study. But individually, A. For a single-event event study? No. 12 because of high threshold for significance, 12 Q. And in your view, reasonable minds 13 13 the kind of news that came out typically on cannot differ on that matter? 14 each day of the class period was not the 14 A. No, I think they can. I think 15 kind of news that would reasonably cause 15 reasonable -- that's why we have 16 one to expect a statistically significant 16 litigation, I guess. 17 17 stock price response. So I'm eager to see what events your 18 18 So therefore, testing it is not experts believe should have been included, 19 informative, because if it's not supposed 19 but I believe that when they present those 20 20 dates and we analyze them, we'll see that to -- if it wouldn't reasonably have a 21 significant impact and then it doesn't, 21 they were -- that the market -- based on 22 22 that nonsignificance doesn't tell you that what I now know about the market, having 23 the market's inefficient. It just confirms 23 run my entire analysis, we'll see that 24 your prior assessment that the news wasn't 24 Freddie Mac's stock reacted appropriately. 25 25 that extreme. I'm eager to see those dates that

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2	they either reasonably or unreasonably may	2	Q. Now, Dr. Bajaj criticized
3	propose as being reasonable candidates for	3	Dr. Hallman's analysis, generally; is that
4	testing.	4	right?
5	I didn't find any, and I believe	5	A. Yeah, that was his job, as he saw
6	there aren't any.	6	it.
7	MR. FRANK: Just for purposes	7	Q. And he identified a number of flaws,
8	of the record, I just want it to be	8	in his opinion, with Dr. Hallman's
9	perfectly clear that my motions to strike	9	analysis, correct?
10	are reserved.	10	A. That's my understanding.
11	MR. MARKOVITS: Yes.	11	Q. And he concluded that if you
12	BY MR. FRANK:	12	corrected Dr. Hallman's analysis, that only
13	Q. Now, upon reviewing Dr. Hallman's	13	one date would have yielded statistically
14	report, you recognize that he found that	14	significant results, correct?
15	only two dates yielded statistically	15	A. That that's my recollection, yes.
16	significant results, correct?	16	Q. He believed that that date was also
17	A. That's right. Two of the six he	17	November 20, 2007, correct?
18	tested.	18	A. Right.
19	Q. Two of the section he tested.	19	Q. So you knew before you constructed
20	A. Yes.	20	your single-event event study that both
21	Q. And one of those dates that yielded	21	Dr. Hallman and Dr. Bajaj had concluded
22	statistically significant results,	22	that November 20, 2007 was a date that,
23	according to Dr. Hallman, was November 20	23	upon testing, yielded statistically
24	of 2007, correct?	24	
25		25	significant price movement, correct?
23	A. Right.	23	A. Well, I mean, the record is what it
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4		1	
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	is. The history of the company is what it	2	that their exposure to nontraditional
3	is.	3	higher-risk loans was substantially greater
4	We can't it's not like a	4	than what the market previously knew.
5	laboratory, a scientific laboratory, where	5	Q. In what you just testified that
6	we can change the facts and see what the	6	the company disclosed that their exposure
7	if the results change.	7	to nontraditional higher-risk loans was
8	But yes, I did know, and because I	8	substantially greater than what the market
9	did know, I was very careful to make sure	9	previously knew.
10	that I could explain that the nature of the	10	Did I get that right?
11	news that transpired that day was such so	11	A. Exactly right.
12	that under the objective selection	12	Q. And was that disclosed in the
13	criterion under the objective selective	13	company's press release issued that day, or
14	criteria, that date would be selected	14	was it disclosed in its supplement to its
15	regardless of whether someone knew or did	15	information statement? Do you know?
16	not know what the stock price reaction was	16	A. I recall reading it in the
17	that day.	17	conference call transcript.
18	Q. Well, what was the news that	18	Q. Your recollection is it was in a
19	transpired that day?	19	conference call transcript?
20	A. The company posted a \$2 billion	20	A. Well, actually, I recall in the
21	loss. The company said that they would	21	conference call transcript one analyst
22	likely have to cut their dividend. The	22	commented on it, mentioned a 29 percent
23	company said that they would they had to	23	exposure. No, I don't recall which
25			
24	investigate strategic alternatives for	24	document the company released that day has
	investigate strategic alternatives for capital infusion. The company disclosed	24 25	document the company released that day has the information. I do recall it was on

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	of those two documents, but I	2	I just asked you whether he
\mathcal{L}	hich document it was.	3	tested 28 dates, and the answer to that has
	you say "one of those two	4	got to be either yes, no, I don't know.
	what are the two documents	5	So, if you don't remember, it's
6 you're referring		6	really okay. It's just going to lengthen
	es the one you just	7	the day if we don't answer the questions.
	he press release and then	8	A. It's the latter.
	oplement. I don't recall	9	Q. So it's the latter being you don't
	ent. But it was disclosed that	10	recall?
11 day.		11	A. Right.
	Or. Bajaj also tested a total	12	Q. Okay, that's fine.
	or to and during the class	13	Now, plaintiffs chose the class
14 period, right?	•	14	period in this case, correct?
15 A. My 1	the scope of my engagement was	15	A. Yes.
16 not to respond	l to Dr. Bajaj's report.	16	Q. And what is your understanding of
17 I read h	s report. I considered it	17	the last day in the class period? What day
to the extent t	hat it informed what I	18	is that?
19 thought would	d be proper methodology for my	19	A. November 20, 2017.
20 analysis.		20	Q. 2007, I think you mean?
	dn't seek to rebut him. So	21	A. 2007, right. 2007.
22 I I don't rec	all	22	Q. We're not there yet.
Q. Well, I	didn't ask you anything	23	So now, let me turn your
	pose of your reviewing	24	attention back to your report.
25 Dr. Bajaj's rej	port.	25	In Paragraph 40 in Paragraph 40,
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	an efficient market, as defined	2	yes.
	Basic, Amgen, Halliburton II,	3	If it's only rarely incorporated,
	d Lowenfels, and Fama, is a	4	that would not be efficient.
	ich available information is	5	Q. For a market to be efficient, it
	porated into the price of a	6	needs to be rapidly incorporating available
	that the trading price	7	information all the time, right?
	vailable information."	8	A. Right.
•	see that?	9	Q. Now, what are Form S-3 eligibility
10 A. I do.	1111 . 6	10	requirements?
	e available information is only	11 12	A. Well, those are for publicly traded
	pidly incorporated into the		companies. It's an expedited way to
	curity, is that an efficient	13	register secondary issues of stock that are
14 market?	the other times the menter is	14	available to companies that satisfy certain
	the other times the market is	15 16	criteria.
	arding material information or	17	Q. And being eligible to file a Form S-3 is one of the factors that was set
J	pediment to trading or an	18	form S-3 is one of the factors that was set forth in the Cammer test, right?
1	to the information flow, then the inefficiency.	19	A. That's right.
	available information is only	20	Q. And
	incorporated into the price	21	A. Well, you call it a Cammer test. I
3 1 3	that's not an efficient	22	wouldn't call it a Cammer test. It's not a
23 market either		23	set of necessary conditions that a stock or
	if you have some reason to	24	company have to has to satisfy in order
,	t's yes, yes, I would say	25	to be deemed efficient.
	_ , _ ,J	1	·

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	they're factors that are	2	case, Freddie Mac wasn't an SEC registrant,
	d in the aggregate to determine	3	correct?
	t's more likely than not that the	4	A. That's right.
	les in an efficient market.	5	Q. And so just as a matter of fact, it
	ir enough. I did not mean to	6	wasn't eligible to file Form S-3s, putting
	. That's fair.	7	aside the Form S-3 eligibility criteria,
	ng eligible to file a Form S-3 is	8	correct?
	e factors that was set forth in	9	A. Right. It was an exceptional
	ner decision?	10	company and as a result of that unique
11 A. Ye		11	nature, it wasn't eligible.
	nd at the time that the Cammer	12	Q. Now, instead of filing Forms 10-K
	issued, one of the criteria for	13	and Forms 10-Q, Freddie Mac posted on its
	gible to file a Form S-3 was that	14	website other forms, right? Is that
	preceding 36 months, the company	15	correct?
	larly filing its Form 10-Ks and	16	A. That's right. Right.
~	th the SEC; is that correct?	17 18	Q. Do you remember what those are
	at's right.	19	called?
	ow, at the time and that has	20	A. Yes. They filed an annual report
20 changed, 21 A. Ye		21	and information supplements.
		22	Q. And do you recall that its annual report was sometimes called was called
	s now a twelve-month look-back that right?	23	an information statement?
1 /	that right: at's right.	24	A. Yes.
	ow, during the class period in this	25	Q. And when it supplemented its annual
Q. NO	ow, during the class period in this	25	Q. And when it supplemented its annual
	Page 100		Page 101
1 9	teven D. Feinstein, Ph.D.	1	Steven P. Feinstein, Ph.D.
	teven P, Feinstein, Ph.D	1 2	Steven P, Feinstein, Ph.D O And do you know how long after the
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2 reports, it 3 information 4 A. Ye 5 Q. No 6 file annua 7 A. Th 8 certain nu 9 closing of 10 Q. An 11 they typic 12 say, two nu 13 fiscal yea 14 A. Rig 15 Q. An 16 around 45 17 quarter; is 18 A. Or 19 Q. No 20 this case, 21 Mac's informatic 23 36-month	called those supplements to on statements? s. www, when do companies typically all reports with the SEC? ere's a schedule. They have a sumber of days following the fifthe quarter. If when it comes to annual reports, ally file within, is it fair to months or so of the close of the registry. If additionally the state of the st	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Q. And do you know how long after the close of Freddie Mac's fiscal year in 2003 A. 2003? Q. Yes. So let's back up. So 36 months before August 1 of 2006 takes us to August 1 of 2003, correct? A. Right. Q. So, in the year 2000, Freddie Mac would have been posting its 2002 information statement, right? A. I'll take your word for it. Sure. Q. Well, we can all agree that 2002 doesn't end until December 31 of 2002, right? A. Right. Q. So it was filing its annual statement sometime in the year 2003, right? A. Yes. Right. Q. Do you know how promptly Freddie Mac filed that information statement?

Page 102 Page 103 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 2 2 Do you know how promptly it filed its S-3 registration eligibility is indicative 3 3 information statement? of market efficiency, because the filing 4 A. No, I did observe -- I mean, I don't 4 requirement ensures that financial data are 5 5 know specifically, but I did observe that available to market participants, and the 6 6 public flow requirement indicates that many it took longer than publicly traded 7 7 market participants would have examined the companies that are required by the SEC to 8 8 information." file these reports. It typically and 9 9 routinely took much longer. Then the quotes from the Cammer 10 10 Q. Did you notice that when it comes to court's decision, if you look at the last 11 one, to speeds things up, "It is the number 11 supplements to information statements that 12 Freddie Mac wasn't posting them 12 of shares traded and value of shares 13 13 outstanding that involve the facts which quarterly? 14 A. Correct. 14 imply efficiency." 15 15 Q. It was posting them less frequently? So that's why. It's a size 16 16 A. I'd have to check that. But my requirement, that means that it's a big 17 17 recollection is that it was longer and less enough company that people would be paying 18 18 regular than for typical SEC registrants. attention to it. People were certainly 19 19 Q. Why is Form S-3 eligibility relevant paying attention to Freddie Mac. 20 20 to the consideration of whether a security Q. It's also a requirement, isn't it, 21 trades in an in an efficient market? 21 that the company is regularly sharing its 22 22 A. I have that written on Page 22, at information in compliance with SEC 23 23 least what the court considered, Page 22, quarterly and annual filing requirements, 2.4 24 Paragraph 79 of my report. correct? 25 I wrote: "Cammer court noted that 25 A. Right. And what's on Page 22 --Page 104 Page 105 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 2 I'll read the rest of it, since you asked. 2 So that's why I did not consider the 3 Q. I'm sorry. I don't think I asked 3 longer period of time to be relevant to the 4 4 you to read from your report. determination of market efficiency or the 5 5 A. No, you -- you -- your question was, lack thereof. 6 6 is it not the case that the filing Q. So --7 requirement is also important? 7 A. It also says, "Because of the 8 foregoing observations made by the SEC, the 8 So because you asked that, I'll read 9 the part that I skipped. 9 existence of Form S-3 status is an 10 10 "Proposed Form S-3 recognizes the important factor, weighing in favor of a 11 11 applicability of the efficient market finding that a market is efficient." 12 theory to the registration statement 12 And then the next two pieces from 13 13 framework with respect to those registrants the Cammer decision focused on the size of 14 14 which usually provide high-quality the company, the public flow and the size 15 15 of the company as being the relevant corporate reports, including exchange 16 document reports and whose corporate 16 portion of the requirements, not the speed 17 17 information is broadly disseminated, at which it produces its reports. 18 18 because such companies are widely followed Q. Well, let's put aside speed. Let's 19 by professional analysts and investors in 19 talk about regularity. 20 20 the marketplace." Do you think that the fact that 21 Well, regardless of whether Freddie 21 Freddie Mac wasn't providing regular 22 Mac took 45 days or two and a half months, 22 quarterly reports during the period 23 no one can dispute that Freddie Mac was 23 preceding the class period is relevant to 24 widely followed by professional analysts 24 whether or not analysts or investors had as 25 25 much available information about the and investors in the marketplace.

Page 106 Page 107 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 company as compared to companies that were 2 A. Oh. Well, in statistics, most --3 3 complying with their SEC filing the way you prove things in statistics is 4 4 by assuming the opposite of a proposition obligations? 5 5 A. That's exactly -- no, they did not and then showing that reality doesn't 6 have as much information during some 6 conform to the implications of that 7 periods of time as other companies. And 7 opposite proposition. 8 efficiency means that the stock price 8 So the opposite proposition is the 9 reacts and incorporates the information 9 null hypothesis. 10 10 that's available. It doesn't say that --You state something like, the market 11 only if we're talking about the strong form 11 is not efficient, the market ignores 12 efficient market hypothesis, and that's not 12 information, and then you do a test to see what we're talking about here. But for the 13 13 if the reality is consistent with the 14 semi-strong form efficient market 14 market ignoring information. hypothesis, the question is, is the market 15 15 And if the reality is not consistent 16 16 incorporating the information that is made with the market ignoring information, you 17 available. 17 could reject that null hypothesis that the 18 The fact that some information may 18 market is inefficient. 19 not be made available doesn't mean it's 19 Q. Now, then, applying the null 20 20 going to be inefficient with respect to hypothesis to your two tests, what is the 21 information that is made available. 21 null -- strike that -- what was the null 22 Q. Now, what is the null hypothesis? 22 hypothesis for your single-event event 23 23 A. Of which test? study test? 2.4 Q. Well, what does the expression "null 24 A. That the stock price movement that 25 hypothesis" mean? 25 day was simply a random fluctuation and the Page 108 Page 109 Steven P, Feinstein, Ph.D 1 1 Steven P, Feinstein, Ph.D 2 movement in the stock price was not caused 2 the result that you observe under the 3 by information; that the market did not 3 assumption that the null hypothesis is 4 react to the information that came out that 4 true. 5 5 So a P value is derived from a 6 6 regression, based on the assumption of a Q. With respect to your FDT z-test, was 7 there one null hypothesis or more than one 7 particular null hypothesis. 8 8 null hypothesis? Q. So, a null hypothesis cannot be 9 A. It's one. The null hypothesis is 9 expressed in an equation using P and other 10 that the market disregards available 10 variables? 11 11 information, such that stock price is not A. It probably can. And it would be 12 impacted by available information. 12 meaningful only to other econometricians, 13 13 Q. Now, in each of those instances, but I guess if you want me to do that, what your event study or single-event event 14 it would be is that the probability -- no, 14 15 15 study on the one hand and the FDT z-test on I'm going to say you can't do that. 16 the other, can the null hypothesis be 16 I mean, that's -- I think if you 17 17 reduced to an econometric equation? reduce it too far, then you're too far 18 18 I'm going to give you a hint. from -- it's not as meaningful as if you 19 Are there equations that have the 19 express it the way I expressed it. 20 20 letter P in them that economists use to Q. Not as -- well, it might not be 21 express the null hypothesis in their tests? 21 meaningful to me, but assume that we've 22 22 engaged an expert economist. A. No, that's not quite right. I mean, 23 I think what you're getting at, and if you 23 Is there a meaningful way to express 24 would like me to explain, I will. 24 the null hypothesis that economists would 25 P is the probability of observing 25 understand?

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	A. No. The stated null hypothesis in	2	earlier about how you went about selecting
3	each of my empirical tests is that the	3	dates for your single-event event study.
4	market ignores information and is,	4	Do you recall that?
5	therefore, inefficient. And by	5	A. Yes.
6	demonstrating repeatedly that it's not the	6	Q. And you were testifying about the
7	case, we have examples and demonstrations	7	subject of reviewing dates that might have
8	of the stock being efficient and behaving	8	mixed news, confounding information, where
9	efficiently.	9	news was expected and where, as a result,
10	MR. FRANK: Why don't we take	10	that news wasn't expected to cause stock
11	a break here. I'm going to label a number	11	price movement.
12	of exhibits, so it probably makes sense to	12	Do you recall that discussion?
13	be more efficient about it. Off the	13	A. Wasn't expected to cause a stock
14	record, please.	14	price movement above the threshold for
15	THE VIDEOGRAPHER: We are off	15	significance.
16	the record at 10:36.	16	Q. If news isn't expected to cause
17		17	stock price movements above the level of
18	(Recess taken from 10:36 a.m.	18	significance, is that evidence of market
19	to 11:05 a.m.)	19	inefficiency?
20	10 11100 411111)	20	A. No.
21	THE VIDEOGRAPHER: We're back	21	Q. Well, if a stock price moves on no
22	on the record at 11:05.	22	news, is that evidence of market
23	511 1116 166614 W 111061	23	inefficiency?
24	BY MR. FRANK:	24	A. Generally not, because there's
25	Q. Dr. Feinstein, we were talking	25	Q. If
	Q. Biri emisem, we were tunning		Ų. II
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	Page 112		Page 113
1	Steven P, Feinstein, Ph.D	1	Page 113 Steven P, Feinstein, Ph.D
1 2	Steven P, Feinstein, Ph.D A background volatility. It's	1 2	
	Steven P, Feinstein, Ph.D		Steven P, Feinstein, Ph.D A. Well, if you have a date that you
2	Steven P, Feinstein, Ph.D A background volatility. It's	2	Steven P, Feinstein, Ph.D
2 3 4 5	Steven P, Feinstein, Ph.D A background volatility. It's well-established in the literature that	2 3 4 5	Steven P, Feinstein, Ph.D A. Well, if you have a date that you or an event that you believe really should
2 3 4	Steven P, Feinstein, Ph.D A background volatility. It's well-established in the literature that there's a current of background volatility	2 3 4	Steven P, Feinstein, Ph.D A. Well, if you have a date that you or an event that you believe really should have moved the stock price, and then you
2 3 4 5	Steven P, Feinstein, Ph.D A background volatility. It's well-established in the literature that there's a current of background volatility affecting all stocks.	2 3 4 5	Steven P, Feinstein, Ph.D A. Well, if you have a date that you or an event that you believe really should have moved the stock price, and then you observe that the stock price did not move
2 3 4 5 6	Steven P, Feinstein, Ph.D A background volatility. It's well-established in the literature that there's a current of background volatility affecting all stocks. Q. And your regression analysis is	2 3 4 5 6	Steven P, Feinstein, Ph.D A. Well, if you have a date that you or an event that you believe really should have moved the stock price, and then you observe that the stock price did not move and there's, perhaps, other evidence that
2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D A background volatility. It's well-established in the literature that there's a current of background volatility affecting all stocks. Q. And your regression analysis is designed to adjust for that background volatility; is that correct? A. Not to adjust for it, but to	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D A. Well, if you have a date that you or an event that you believe really should have moved the stock price, and then you observe that the stock price did not move and there's, perhaps, other evidence that it was completely disregarded and ignored by the market irrationally, that's an indicator that's evidence of
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D A background volatility. It's well-established in the literature that there's a current of background volatility affecting all stocks. Q. And your regression analysis is designed to adjust for that background volatility; is that correct? A. Not to adjust for it, but to establish a comparison benchmark so that we	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D A. Well, if you have a date that you or an event that you believe really should have moved the stock price, and then you observe that the stock price did not move and there's, perhaps, other evidence that it was completely disregarded and ignored by the market irrationally, that's an indicator that's evidence of inefficiency.
2 3 4 5 6 7 8 9 10	Steven P, Feinstein, Ph.D A background volatility. It's well-established in the literature that there's a current of background volatility affecting all stocks. Q. And your regression analysis is designed to adjust for that background volatility; is that correct? A. Not to adjust for it, but to establish a comparison benchmark so that we can discern whether a movement is so big	2 3 4 5 6 7 8 9 10	Steven P, Feinstein, Ph.D A. Well, if you have a date that you or an event that you believe really should have moved the stock price, and then you observe that the stock price did not move and there's, perhaps, other evidence that it was completely disregarded and ignored by the market irrationally, that's an indicator that's evidence of inefficiency. I mean, we're speaking in the
2 3 4 5 6 7 8 9 10 11	Steven P, Feinstein, Ph.D A background volatility. It's well-established in the literature that there's a current of background volatility affecting all stocks. Q. And your regression analysis is designed to adjust for that background volatility; is that correct? A. Not to adjust for it, but to establish a comparison benchmark so that we can discern whether a movement is so big that it's not reasonably caused by that	2 3 4 5 6 7 8 9 10 11	Steven P, Feinstein, Ph.D A. Well, if you have a date that you or an event that you believe really should have moved the stock price, and then you observe that the stock price did not move and there's, perhaps, other evidence that it was completely disregarded and ignored by the market irrationally, that's an indicator that's evidence of inefficiency. I mean, we're speaking in the hypothetical here, in the general. But
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Page 114 Page 115 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 absolutely clear and indisputable which single-event event study? 3 3 A. Yeah. I cite to it. direction the stock price should move, if 4 4 There's an established literature on investors are rational, and the price moved 5 5 in the opposite direction, that would weigh how to run an event study. 6 6 against fundamental efficiency. Q. And what literature are you 7 7 I mean, whatever model you're using referring to? 8 8 to determine the correct direction of the A. Well, specifically, I think the 9 price movement, it would -- that would be 9 seminal work or, actually, the seminal 10 10 evidence that the market was not using that review is the review article by, Lo and 11 11 same model, that the market was, perhaps, MacKinlay. There's also the -- I cite to 12 was -- perhaps they're reacting to the 12 it here. 13 13 news, so there's no impediment to (Witness reviews document.) information flow or trading, but perhaps 14 The Nicholas Crew chapter, "Federal 14 Securities Acts in Area of Expert 15 there's some irrationality there, which 15 16 would weigh against fundamental efficiency. 16 Analysis in Litigation Services Handbook," 17 Q. Now, in connection with your effort 17 Chapter 24, also presents the standard 18 18 events study methodology, and event to select one or more dates for your 19 19 single-event event study, you described selection methodology is a component of 20 earlier the review of information you did 20 21 to select an event, correct? 21 Q. I'm sorry. What page of your report 22 22 A. Yes. are you on? 23 Q. Is there any literature that 23 A. 52, "Academic and Professional Literature" in "Documents and Other 24 supports the approach that you took in this 24 25 case to select an event for your 25 Information Considered." Page 116 Page 117 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 Q. And --2 support the approach that you took in A. The fourth bullet point from the 3 3 developing and selecting -- in selecting 4 4 the November 20 date for your single-event bottom. 5 5 Q. And it's your understanding that the event study? 6 6 Nicholas Crew article entitled "Federal A. And to be clear, what we mean by 7 Securities Acts and Areas of Expert 7 that methodology is that I read the news 8 8 Analysis," describes the method that you and assessed whether the news was such that 9 used in this case to select November 9 it would reasonably cause a statistically 20, 2007 for your single-event event study? 10 10 significant movement before subjecting that 11 A. Well, they discuss the event study 11 event to an event study. That's what we're 12 methodology and how to do it. 12 talking about. Right? 13 Q. Other than Crew and Campbell, Lo and 13 I believe what I did is supported by 14 the literature. I don't know if they -- if 14 MacKinlay, are there any other academic or 15 15 they explain -- I don't know how much -- I professional articles that, in your view, 16 don't recall exactly how much detail they 16 support the approach that you took in go into in event selection. But certainly, 17 17 selecting the November 20 date for your what I did is consistent with -- well, not 18 single-event event study? 18 19 only consistent, it's directed by the 19 A. Well, other than these seminal 20 20 principles that they explain, them and works, there may be. I would have to 21 Campbell and Lo and MacKinlay, about how to 21 check. I don't have the -- I know the 22 22 run an event study. principles from the literature, but I don't 2.3 2.3 Q. Other than Crew and Campbell, Lo and have memorized the bibliography of where MacKinlay, are there any other academic or 24 24 these principles reside. 25 professional articles that, in your view, 25 Q. None come to mind as you sit here

	Page 118		Page 119
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	today, other than what you've already	2	FDT test describes separation of dates into
3	identified?	3	news and non-news categories, rather than
4	A. Well, because I've identified these	4	
		5	identification of appropriate dates for a
5	two, and I always felt that was sufficient.		single-event event study.
6	But if you want additional ones, I would	6	Q. When you refer to the original FDT
7	have to go review the literature.	7	test, are you referring to the FDT article?
8	Q. No other ones come to mind as you	8	A. That's what I meant, the article.
9	sit here right now?	9	Q. Now, in the past, you have used
10	A. Right.	10	earnings dates as the dates that were
11	Q. Now	11	tested for purposes of an FDT z-test; is
12	A. I mean, that's not to say they're	12	that correct?
13	not there. They just don't come to mind.	13	A. That's right.
14	Let me be clear about that.	14	Q. You didn't do that in this case,
15	Q. Now, you used a different approach	15	right?
16	to selecting dates for your FDT test,	16	A. That's right.
17	correct?	17	Q. Why not?
18	A. It's a different test. It calls for	18	A. Well, they've already been picked
19	a different selection algorithm.	19	over, essentially, by Hallman and Bajaj.
20	Q. And is there any literature that	20	They I mean, the FDT test separates the
21	supports the view that the selection of	21	buckets, separates the dates into two
22	dates for an FDT z-test should be different	22	categories based on information flow or low
23	than the selection of dates for an event	23	information flow without examining whether
24	study?	24	each particular day should be significant
25	A. Yeah. Yes. I believe the original	25	or not significant based on the nature of
	D 100		7 101
	Page 120		Page 121
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D the news.	2	Steven P, Feinstein, Ph.D yourself use the same rule?
2	Steven P, Feinstein, Ph.D the news. So since they've already done that	2 3	Steven P, Feinstein, Ph.D yourself use the same rule? A. Because it was already established
2 3 4	Steven P, Feinstein, Ph.D the news. So since they've already done that analysis and I was aware of that analysis,	2 3 4	Steven P, Feinstein, Ph.D yourself use the same rule? A. Because it was already established that at least four of the six earnings
2 3 4 5	Steven P, Feinstein, Ph.D the news. So since they've already done that analysis and I was aware of that analysis, it was inappropriate to use the to retry	2 3 4 5	Steven P, Feinstein, Ph.D yourself use the same rule? A. Because it was already established that at least four of the six earnings announcement dates were such that they
2 3 4 5 6	Steven P, Feinstein, Ph.D the news. So since they've already done that analysis and I was aware of that analysis, it was inappropriate to use the to retry the same territory and use the same dates,	2 3 4 5 6	Steven P, Feinstein, Ph.D yourself use the same rule? A. Because it was already established that at least four of the six earnings announcement dates were such that they would not be statistically significant.
2 3 4 5 6 7	Steven P, Feinstein, Ph.D the news. So since they've already done that analysis and I was aware of that analysis, it was inappropriate to use the to retry the same territory and use the same dates, the same event categories.	2 3 4 5 6 7	Steven P, Feinstein, Ph.D yourself use the same rule? A. Because it was already established that at least four of the six earnings announcement dates were such that they would not be statistically significant. They already established that.
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D the news. So since they've already done that analysis and I was aware of that analysis, it was inappropriate to use the to retry the same territory and use the same dates, the same event categories. So I looked for a different rule	2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D yourself use the same rule? A. Because it was already established that at least four of the six earnings announcement dates were such that they would not be statistically significant. They already established that. So a different rule would provide
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	Page 122		Page 123
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2		2	contents, where it which refers to
3	(Brief recess.)	3	Page 19, event study test of market
4	,	4	efficiency throughout the class period.
5	(Exhibit No. 97 marked for	5	Q. And if you turn to Page 19, you'll
6	identification.)	6	see that the at the top of the page,
7	,	7	it's Paragraph 86.
8	THE VIDEOGRAPHER: We are back	8	Do you see that?
9	on the record at 11:19.	9	A. Yes.
10		10	Q. And do you see in the first
11	BY MR. FRANK:	11	sentence, it says, "The second empirical
12	Q. Dr. Feinstein, I'm showing you a	12	test was an event study that investigates
13	document that has been marked as	13	whether CVS Caremark common stock exhibited
14	Exhibit 97.	14	market efficiency by generally moving more
15	What is Exhibit 97.	15	in response to the earnings and guidance
16	A. This is a report on market	16	events than it moved typically on all other
17	efficiency that I wrote and submitted in	17	dates."
18	February of 2015 in conjunction with the	18	Do you see that?
19	CVS Caremark case.	19	A. Yes.
20	Q. And did you perform an event study	20	Q. And does this document refresh your
21	in this case?	21	recollection that you actually used
22	A. (Witness reviews document.)	22	earnings and guidance events as the dates
23	Yes.	23	you studied in your event study for the CVS
24		24	Caremark matter?
25	Q. What page are you looking at?A. I'm looking at the table of	25	A. Yes. I mean, for the collective
25	A. Thi looking at the table of	23	A. Tes. Tilleall, for the confective
	Page 124		
	raye 124		Page 125
1		1	
1 2	Steven P, Feinstein, Ph.D test.	1 2	Steven P, Feinstein, Ph.D earnings, correct?
	Steven P, Feinstein, Ph.D test.		Steven P, Feinstein, Ph.D earnings, correct?
2	Steven P, Feinstein, Ph.D	2	Steven P, Feinstein, Ph.D earnings, correct? A. Right, while November 5 was an
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Steven P, Feinstein, Ph.D test. Q. Was there a single-event event study that you conducted in this case that was not a collective test? A. Yes. Q. And where is that set forth in the report? A. (Witness reviews document.) Page 22, there were two events, January 9, 2009 and November 5, 2009. And the results, I mean, beginning on Page Paragraph 96 is the description of that test, and that runs through Paragraph 123. Q. And you identified those two dates that you studied in Paragraph 99, correct? A. Yes. Q. And those were both earnings disclosure dates, correct? A. Not really. I think what it says here is January 9 was a guidance date a	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Steven P, Feinstein, Ph.D earnings, correct? A. Right, while November 5 was an earnings announcement date. Q. You didn't perform a z-test in the CVS Caremark case, did you? A. No, I used the F-test and the Ansari-Bradley test. Q. And let me turn your attention to the next exhibit that has been marked as Exhibit 98. (Exhibit No. 98 marked for identification.) BY MR. FRANK: Q. Is it fair to say that Exhibit 98 is your expert report in the JPMorgan securities litigation? A. Yes. Q. Dated February 13, 2015, correct? A. Yes.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D test. Q. Was there a single-event event study that you conducted in this case that was not a collective test? A. Yes. Q. And where is that set forth in the report? A. (Witness reviews document.) Page 22, there were two events, January 9, 2009 and November 5, 2009. And the results, I mean, beginning on Page Paragraph 96 is the description of that test, and that runs through Paragraph 123. Q. And you identified those two dates that you studied in Paragraph 99, correct? A. Yes. Q. And those were both earnings disclosure dates, correct? A. Not really. I think what it says	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D earnings, correct? A. Right, while November 5 was an earnings announcement date. Q. You didn't perform a z-test in the CVS Caremark case, did you? A. No, I used the F-test and the Ansari-Bradley test. Q. And let me turn your attention to the next exhibit that has been marked as Exhibit 98. (Exhibit No. 98 marked for identification.) BY MR. FRANK: Q. Is it fair to say that Exhibit 98 is your expert report in the JPMorgan securities litigation? A. Yes. Q. Dated February 13, 2015, correct? A. Yes. Q. And then in that case, you also did
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D test. Q. Was there a single-event event study that you conducted in this case that was not a collective test? A. Yes. Q. And where is that set forth in the report? A. (Witness reviews document.) Page 22, there were two events, January 9, 2009 and November 5, 2009. And the results, I mean, beginning on Page Paragraph 96 is the description of that test, and that runs through Paragraph 123. Q. And you identified those two dates that you studied in Paragraph 99, correct? A. Yes. Q. And those were both earnings disclosure dates, correct? A. Not really. I think what it says here is January 9 was a guidance date a guidance change date, not an earnings	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D earnings, correct? A. Right, while November 5 was an earnings announcement date. Q. You didn't perform a z-test in the CVS Caremark case, did you? A. No, I used the F-test and the Ansari-Bradley test. Q. And let me turn your attention to the next exhibit that has been marked as Exhibit 98. (Exhibit No. 98 marked for identification.) BY MR. FRANK: Q. Is it fair to say that Exhibit 98 is your expert report in the JPMorgan securities litigation? A. Yes. Q. Dated February 13, 2015, correct? A. Yes.

	Page 126		Page 127
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Q. You did both a single-event event	2	Steven 1, 1 chisteni, 1 n.D
3	study and a collective test, correct?	3	(Exhibit No. 99 marked for
4	A. Correct.	4	identification.)
5	Q. And while you did a collective test,	5	identification.)
6	it wasn't a z-test, correct?	6	BY MR. FRANK:
7	A. That's right. An F-test and then	7	Q. Now, let me turn your attention to
8	Ansari-Bradley.	8	the next exhibit.
9	Q. And you used and please turn your	9	This is a this is a document
10	attention to Page 19, Paragraph 83.	10	that's been marked as Exhibit 99.
11	A. Yes.	11	Exhibit 99 is your report in the
12	Q. And there you see in the second	12	Petrobras securities litigation dated
13	paragraph, it says, "The events tested	13	October 15, 2015; is that correct?
14		14	A. Yes.
15	during this examination period were all	15	Q. You did an FDT z-test in this case,
16	earnings and guidance announcements."	16	,
17	Do you see that? A. I do.	17	correct? A. Yes.
		18	
18	Q. And in Paragraph 84, it also says		Q. Do you know how many total FDT
19	you examined the earnings and guidance	19	z-tests you have done as an expert in
20	announcements; is that right?	20	securities litigation?
21	A. Yes.	21	A. No.
22	Q. And you examined more than one date	22	Q. But this is one of the cases?
23	for your single-event event study in that	23	A. Yes.
24	case, correct?	24	Q. Now, in this case, you used earning
25	A. It seems to be three events, yes.	25	dates as the dates that were the subject of
	Page 128		Page 129
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	your FDT z-test, correct?	2	"single-event event study," you use that
3	A. No. Yeah, I ran the test on	3	expression to include when you do that for
4	earnings dates. I also ran it on 6-K event	4	a series of cases, right, a series of
5	dates as well, which are like 8-Ks, but for	5	dates, right?
6	a foreign company.	6	A. Yes.
7	a foreign company.	7	Q. When you say "single-event event
8	(Exhibit No. 101 marked for	8	study," you don't mean that there was
9	identification.)	9	necessarily a single event for the entire
10	identification.)	10	event study, correct?
11	BY MR. FRANK:	11	A. Correct. But each time the event
12	Q. Let me turn your attention to a KBR	12	study is run, it's focused on a single
13	report. I'm showing you a document that	13	event.
14	has been marked as Exhibit 101. We're	14	Q. Right. And how many dates did you
15	going to go a little bit out of order,	15	look at in the KBR matter?
16	because we premarked it.	16	A. (Witness reviews document.)
17	Exhibit 101 is your report dated	17	Four.
18	February 19, 2016 in the KBR securities	18	
19	litigation; is that correct?	19	Q. And for the collective test, you used strike that.
20	A. Yes.	20	For both the event study and the
21	Q. In the KBR case, you did both a	21	collective test, you used earnings dates,
22	The state of the s	22	correct?
23	single-event event study and a collective test, correct?	23	A. Let me check.
23	A. Yes.	24	A. Let me check. (Witness reviews document.)
25	Q. And how many dates when you say	25	Well, it's what it says on
	2. This now many dates when you say		wen, it 5 - what it says on

	Page 130		Page 131
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
1 2	Paragraph 104 and -5 is that I used	1 2	A. That's right.
3	corrective disclosure dates, which well,	3	Q. And
4	some of which the first, third and	4	A. That was the sorting variable.
5	fourth were financial reporting dates;	5	Q. And for your event study that wasn't
6	and the second one, May 5th, 2014, was not.	6	a collective event, you also looked at
7	It was a date where they announced that	7	dates you looked at four dates; is that
8	they would be restating their financials.	8	correct?
9	Q. Let me turn your attention to	9	A. Right. I picked dates that were the
10	Paragraph 93.	10	red-letter dates in the life of this
11	There you say that you ran the	11	company, which were the corrective
12	second set of tests you ran collectively is	12	disclosure dates, one of which was not an
13	a broad set of events that occur over the	13	
14		14	earnings announcement date. Q. But three of which were?
15	course of a full year that ends with the	15	`
16	class period?	16	A. Right.
17	A. That's right.	17	(Eyhibit No. 102 marked for
18	Q. You wrote "The events tested during this estimation period were all earnings	18	(Exhibit No. 102 marked for identification.)
19	and guidance announcements."	19	identification.)
20	Is that correct?	20	BY MR. FRANK:
21	A. Yes.	21	
22		22	Q. Let me turn your attention to a document that's been marked as
23	Q. And what you wrote there was true? For your collective test you were looking	23	Exhibit 102.
23		24	
25	at earnings and guidance announcements,	25	This is your expert report in the
23	right?	23	World Acceptance Corporation securities
	Page 132		Page 133
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	litigation, dated September 28, 2016.	2	Q. Now, what dates did you choose for
3	MR. MARKOVITS: Do I have that	3	your collective test?
4	in the binder here?	4	A. Earnings announcement events.
5	MS. HAYS: You should.	5	The Eurimige aimic uncernions events.
6	MR. MARKOVITS: Five is	6	(Exhibit No. 103 marked for
7	missing.	7	identification.)
8	MR. FRANK: We're going to	8	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
9	make a donation to the cause.	9	BY MR. FRANK:
10	MR. MARKOVITS: Thank you.	10	Q. Now, let me turn your attention to
11	I'm sorry. What exhibit number was this?	11	the next exhibit.
12	MR. FRANK: 102.	12	This is Exhibit 103. Exhibit 103
13	BY MR. FRANK:	13	is, I think, if we've done this right, is
14	Q. Exhibit 102, you have that before	14	your report in the Eletrobras securities
15	you, correct, sir?	15	case, dated June 30, 2017.
16	A. Yes.	16	Do you see that?
17	Q. And did you you didn't do an FDT	17	A. Yes.
18	test in this World Acceptance Corporation	18	Q. And you did a z-test, an FDT z-test
19	matter, right?	19	in this case, correct?
20	A. You're saying I did not?	20	A. Yes.
21	Q. You did not.	21	Q. And do you, essentially, use the
22	A. I did the collective test using the	22	term z-test and FDT z-test to mean the same
23	F-test and Ansari-Bradley test.	23	thing when you're talking about this test
24	Q. You didn't do the z-test?	24	in the securities litigation context?
25	A. Correct.	25	A. Yes.

	Page 134		Page 135
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Q. And you used earnings dates as the	2	Q. Do you see in the first panel the
3	basis of your test your z-test in the	3	second table that lists coefficient
4	Eletrobras case, correct?	4	standard errors and T-statistics?
5	A. Yes.	5	Do you see that?
6	Q. Let me turn your attention to your	6	A. Yes.
7	report in this case. You should still have	7	Q. We see an intercept in the far left
8	that before you. I believe that's been	8	column, correct?
9	marked as Exhibit 96.	9	A. Yes.
10	A. I have it.	10	Q. And a market index, right?
11		11	A. Yes.
12	Q. And do you see that there's an	12	
13	Exhibit 7 at the end of your report? A. Yes.	13	Q. And a peer index, right?
			A. Yes.
14	Q. And do you see that on Exhibit 7,	14	Q. And then we see five dates. Do you
15	there's, I guess, four panels; is that fair	15	see that?
16	to say?	16	A. I do.
17	A. Yes. Well, yes.	17	Q. What why are those five dates on
18	Q. What word do you use to describe the	18	this table?
19	different tables?	19	A. (Witness reviews document.)
20	A. There's two panels. These are	20	Well, these are the dates that are
21	regression results, but for the two	21	tested. These are the specific dates that
22	subperiods.	22	are tested in the two different empirical
23	Q. Two panels. So let's talk about the	23	tests.
24	first panel.	24	So if and if, under the null
25	A. Okay.	25	hypothesis that there's no difference
	Page 136		- 105
			Page 137
-			Page 137
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D between information and no information	2	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the
2 3	Steven P, Feinstein, Ph.D between information and no information dates or high information and low	2 3	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they
2 3 4	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control	2 3 4	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in
2 3 4 5	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of	2 3 4 5	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22,
2 3 4 5 6	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative	2 3 4 5 6	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30,
2 3 4 5 6 7	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and	2 3 4 5 6 7	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market	2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20.
2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates
2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the
2 3 4 5 6 7 8 9 10	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background	2 3 4 5 6 7 8 9 10 11	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT
2 3 4 5 6 7 8 9 10 11	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background volatility and not volatility that's	2 3 4 5 6 7 8 9 10 11 12	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT z-test?
2 3 4 5 6 7 8 9 10 11 12 13	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background volatility and not volatility that's impacted by the atypical responses to	2 3 4 5 6 7 8 9 10 11 12 13	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT z-test? A. Yes.
2 3 4 5 6 7 8 9 10 11 12 13 14	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background volatility and not volatility that's impacted by the atypical responses to atypical news.	2 3 4 5 6 7 8 9 10 11 12 13 14	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT z-test? A. Yes. Q. And that's what this these two
2 3 4 5 6 7 8 9 10 11 12 13 14 15	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background volatility and not volatility that's impacted by the atypical responses to atypical news. Q. I think at the beginning of your	2 3 4 5 6 7 8 9 10 11 12 13 14 15	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT z-test? A. Yes. Q. And that's what this these two tables are showing?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background volatility and not volatility that's impacted by the atypical responses to atypical news. Q. I think at the beginning of your answer, you said these are the dates that	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT z-test? A. Yes. Q. And that's what this these two tables are showing? A. Yes. I mean, the reason for running
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background volatility and not volatility that's impacted by the atypical responses to atypical news. Q. I think at the beginning of your answer, you said these are the dates that were tested in the two different tests.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT z-test? A. Yes. Q. And that's what this these two tables are showing? A. Yes. I mean, the reason for running a regression in an event study is to
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background volatility and not volatility that's impacted by the atypical responses to atypical news. Q. I think at the beginning of your answer, you said these are the dates that were tested in the two different tests. I'm not sure that that's accurate.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT z-test? A. Yes. Q. And that's what this these two tables are showing? A. Yes. I mean, the reason for running a regression in an event study is to measure typical volatility, the typical
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background volatility and not volatility that's impacted by the atypical responses to atypical news. Q. I think at the beginning of your answer, you said these are the dates that were tested in the two different tests. I'm not sure that that's accurate. What are the two tests you're	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT z-test? A. Yes. Q. And that's what this these two tables are showing? A. Yes. I mean, the reason for running a regression in an event study is to measure typical volatility, the typical level of background volatility.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background volatility and not volatility that's impacted by the atypical responses to atypical news. Q. I think at the beginning of your answer, you said these are the dates that were tested in the two different tests. I'm not sure that that's accurate. What are the two tests you're referring to?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT z-test? A. Yes. Q. And that's what this these two tables are showing? A. Yes. I mean, the reason for running a regression in an event study is to measure typical volatility, the typical level of background volatility. If there's some reason to suspect
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background volatility and not volatility that's impacted by the atypical responses to atypical news. Q. I think at the beginning of your answer, you said these are the dates that were tested in the two different tests. I'm not sure that that's accurate. What are the two tests you're referring to? A. The single-event event study, that	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT z-test? A. Yes. Q. And that's what this these two tables are showing? A. Yes. I mean, the reason for running a regression in an event study is to measure typical volatility, the typical level of background volatility. If there's some reason to suspect that some dates might have atypical
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D between information and no information dates or high information and low information dates, it's benign to control for abnormal the abnormal nature of event dates and only under the alternative assumption that the market is efficient and that the information that the market response to information, then, these dates should be controlled for, since what we're trying to do is measure typical background volatility and not volatility that's impacted by the atypical responses to atypical news. Q. I think at the beginning of your answer, you said these are the dates that were tested in the two different tests. I'm not sure that that's accurate. What are the two tests you're referring to? A. The single-event event study, that November 20, 2007 is controlled for. And	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D column on Page 79 tells us which is the effective date of the event, and they correspond exactly to what you see in Exhibit 7: February 27, April 18, May 22, June 14, August 8, August 30, September 27, November 8 and November 20. Q. Did you control for these five dates in your regressions for both the single-event event study and the FDT z-test? A. Yes. Q. And that's what this these two tables are showing? A. Yes. I mean, the reason for running a regression in an event study is to measure typical volatility, the typical level of background volatility. If there's some reason to suspect that some dates might have atypical volatility, they should be controlled for.
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Page 138 Page 139 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 1 2 white like that. 2 the price reacts to information, if you do 3 3 You have to consider that in the not control for event dates that are 4 4 interpretation of the results if they unusual dates, your regression will be more 5 5 weren't controlled for. likely to find an event nonsignificant. 6 6 If anything, not controlling for Q. Well, when you make the decision as 7 7 them would bias the test toward a finding to whether to include them or exclude them, 8 8 of nonsignificance for an event date. So you have to be agnostic as to whether or 9 9 not the market is efficient, correct? you have to consider that when evaluating 10 10 the power of the test and the results. A. That's right. And that's why this 11 11 Q. When you say it might bias the test is a good assumption, because being 12 in favor of finding nonsignificance, is 12 agnostic and not knowing what the results 13 13 that another way of saying that if you are and relying on the test to vindicate 14 include these dates in your regression, 14 what the results are, it's completely 15 it's more likely that you would find 15 benign under the null hypothesis to exclude 16 nonsignificance; and if you exclude them, 16 event dates or to dummy for event dates, to 17 it's more likely that you would find 17 control for event dates. But it wouldn't be benign to not 18 18 significance? 19 A. If you exclude them, and the fact of 19 control for them if, in fact, the market is 20 the matter, the real world is such that the 20 efficient. 21 market's efficient and does react to 21 So the right course of action is to 22 information -- let me say that again. 22 control for them. Certainly, before you 23 The fact of the matter is that the 23 know the results, before you've run the 24 world is efficient and that this stock 24 regression. 25 trades in an efficient market, such that 25 Q. Isn't it possible that if the market Page 140 Page 141 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 2 is inefficient, that controlling for them 2 whether or not -- strike that. 3 can affect the results of the testing? 3 Do you know how it would affect your 4 4 A. Well, I mean, if you mean -- when results if you hadn't controlled for these 5 5 you run the test two different ways, you'll five dates? 6 6 always find slight differences. But you A. In theory, but not the 7 want to see if there's a systematic 7 quantification. 8 8 difference caused by a factor relevant to Q. What's your understanding in 9 the null hypothesis or the alternative 9 theory? 10 10 hypothesis. A. In theory, if the market is 11 11 But what you want to see is, if it's efficient such that information dates have 12 12 unusual price dynamics, then not benign, taking into account what you're 13 13 trying to test. And in this case, it would controlling for them -- in other words, 14 be benign to control for them if the market 14 letting these days appear in the data 15 is inefficient. And it would be 15 series as typical days -- would upwardly 16 appropriate to control for them if the 16 bias the measured level of volatility, and 17 17 market is either inefficient or efficient. therefore, downwardly bias the likelihood 18 18 So the right course of action would of finding a statistically significant 19 be to control for them. 19 event result. 20 20 Q. Did you run your test without Q. Isn't it possible that if the 21 controlling for them? 21 market's not efficient, then controlling 22 for them biases the results in favor of the 22 A. Could I or did I? 23 Q. Did you. 23 a finding of market efficiency? 24 A. No. 24 A. I wouldn't call that bias. I mean, 25 25 Q. Well, so do you actually know it's certainly possible that the -- because

Page 142 Page 143 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 and wrong. The methodology would be wrong, 2 of random effects that -- well, because of 3 3 and the result of finding nonsignificance random effects, changing the specification when, in fact, the date -- the event is 4 of the regression will change the 4 5 5 actually significant, that would be a regression results to some extent. 6 That's why it's important to do it 6 spurious result. 7 7 right. That's why it's important to drive The methodology isn't spurious, the 8 8 the decision of whether to include them or result would be spurious based on the wrong 9 9 not include them on the basis of approach. 10 10 Q. If you assume that the market's statistical -- generally accepted, widely used and correct statistical methodology, 11 11 efficient? 12 which is what I did. 12 A. No, not based on the assumption. 13 13 Whether the market's efficient or But if you do it wrong, yeah, you'll see a different result. I mean, 14 14 not -- okav. 15 Let's make a decision. Do you 15 theoretically the result would be to find less significance if you do not control for 16 control for the event dates or do you not 16 17 17 control for the event dates? these dates. 18 Under the null hypothesis that the 18 But that would be spurious and 19 market is inefficient, it doesn't make any 19 wrong. 20 20 Q. Now, it would be spurious and wrong difference. 21 not to control for the dates? That's your 21 So -- so we don't have to -- we 22 22 don't have a directive from that view? A. Yes. 23 23 consideration. 24 But under the alternative hypothesis 24 Q. Okay. Now, I see that there are --25 A. I mean, the result would be spurious 25 that the market is efficient, not Page 144 Page 145 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 1 2 controlling for them would lead to a 2 you reviewed earlier. 3 spurious result, and controlling for them 3 Now, you'll see on Exhibit 7A that 4 would lead to the correct result. 4 this is a Petrobras common ADR regression 5 5 So given that out of the four summary. possibilities -- controlling, not 6 6 Do you see that? 7 controlling, efficient, not efficient --7 A. Yes. 8 8 considering those four possibilities, the Q. Now, I see that there's a column for 9 right thing to do is to control for them. 9 intercept there. Do you see that? Q. But let me --10 10 A. Yes. A. It's benign -- if you're -- it's 11 11 Q. And just like on Exhibit 7 of your 12 benign if the market is inefficient. And 12 report in this case, there's a row for 13 it matters and it's correct if the market 13 intercept, right? A. Yes. 14 is efficient. 14 15 15 O. And there's a column for market index, right? 16 (Exhibit No. 100 marked for 16 17 17 identification.) A. Yes. 18 18 Q. Coefficient? And we see market 19 BY MR. FRANK: 19 index on your report here, right? 20 20 Q. Well, let me show you a document A. Yes. 21 that has been marked as Exhibit 100. We've 21 Q. And we see a peer index coefficient, 22 22 stapled it in the top right for your ease just like we see a peer index row here in of review. 23 23 your report in this case, right? A. Yes. 24 I will represent to you that this is 24 Exhibit 7A from the Petrobras report that 25 25 Q. But there are no dates listed there,

	Page 146		Page 147
1 Steven	P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2 right?	,	2	So I didn't want to make that
3 A. Correct.		3	mistake or even raise the appearance that I
4 Q. And just	like this case, in the	4	was dummying out too many dates, such that
	you used earnings dates as	5	the regression could be considered or
	our FDT z-test, correct?	6	considered unreliable.
	sed earnings, and I ran the	7	So you can imagine how wide this
	the 6-Ks. There are	8	document would have been if I had 85 or 90
	eight-five 6-Ks.	9	dummy variables.
~	d earnings dates and 6-K	10	And I think I may have explained,
11 dates?		11	either in the report or in testimony, for
12 A. Right.	49	12	that case, the same thing that I told you
Q. Is that co		13 14	today, which is that if anything, not
14 A. That's ri 15 O. In your		15	dummying out and controlling for tested
	regression summary in did not control for the	16	event dates, if anything, that would bias the result towards a finding of
	or the 6-K dates, correct?	17	inefficiency and nonsignificance.
•	ght, for good reason.	18	So, basically, I this was a
19 Q. And what		19	conservative decision to run the regression
	good reasons.	20	in a manner that was most favorable to
	e the two good reasons?	21	defendants and see what results are
	at would have required about	22	produced.
	y variables. Reports have	23	Q. Does dummying out the dates bias the
24 already looked	and said economists dummying	24	test in favor of efficiency or
25 out 85 or 90 da	ys.	25	inefficiency?
	Page 148		Page 149
	P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2 A. Neither	. If neither. Because	2	Steven P, Feinstein, Ph.D Q. Now, you testified earlier that a
2 A. Neither 3 in if the man	. If neither. Because ket is, in fact,	2 3	Steven P, Feinstein, Ph.D Q. Now, you testified earlier that a Form 6-K is like a Form 8-K but rather than
A. Neither in if the man inefficient, the	. If neither. Because ket is, in fact, ere should be no effect.	2 3 4	Steven P, Feinstein, Ph.D Q. Now, you testified earlier that a Form 6-K is like a Form 8-K but rather than Form 8-Ks that are filed by domestic US
2 A. Neither 3 in if the man 4 inefficient, the 5 And if the	. If neither. Because ket is, in fact, are should be no effect. he market is determined to	2 3 4 5	Steven P, Feinstein, Ph.D Q. Now, you testified earlier that a Form 6-K is like a Form 8-K but rather than Form 8-Ks that are filed by domestic US companies, 6-Ks are filed by foreign
2 A. Neither 3 in if the man 4 inefficient, the 5 And if th 6 be efficient, th	the tis, in fact, the should be no effect. The market is determined to the dummying out is the	2 3 4	Steven P, Feinstein, Ph.D Q. Now, you testified earlier that a Form 6-K is like a Form 8-K but rather than Form 8-Ks that are filed by domestic US companies, 6-Ks are filed by foreign companies, correct?
A. Neither in if the man inefficient, the And if the be efficient, the correct unbias	rket is, in fact, bre should be no effect. he market is determined to hen dummying out is the ed approach.	2 3 4 5 6	Steven P, Feinstein, Ph.D Q. Now, you testified earlier that a Form 6-K is like a Form 8-K but rather than Form 8-Ks that are filed by domestic US companies, 6-Ks are filed by foreign companies, correct? A. That's right.
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Page 150 Page 151 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 variables or not, dummying out variables result when the market is efficient. It 3 3 makes it more likely that -- or strike has no result on correct or incorrect when 4 4 the market is -- I said that backwards. that. 5 5 Including these dates and not Wait. 6 dummying them out makes it more likely that 6 If the market is efficient, you get 7 there's a finding of market inefficiency, 7 the correct result; it's more likely you 8 8 get the correct result. 9 9 If the market is inefficient, it A. Under -- under -- well, now we're 10 10 talking about type 1 and type 2 error. won't affect the results one way or the 11 In a world -- if, in fact --11 other in terms of bias and changing the 12 unbeknownst to the researchers, but it's a 12 probabilities of a particular finding. 13 13 fact, God knows, that it's an efficient Q. And is dummying out the variables 14 market. If that's the case, then dummying 14 favorable to plaintiff or defendant in your out the events will give you the correct 15 15 view? 16 16 result -- will be more likely to give you A. I think it's favorable to the court, 17 the correct result that, in fact, the 17 because we get at the right answer. I 18 market is efficient. 18 mean, it's -- that's how I view it. 19 On the other hand, let's say the 19 Q. So it's not your view that it's 20 truth of the matter is that the market is 20 favorable to one party or another? 21 inefficient -- God knows it, but we don't 21 A. It's the correct methodology -- it's 22 yet know it, we have to do the econometrics 22 the correct methodology to get at the right 23 to determine it. Dummving out the 23 24 variables will have no effect. So it makes 24 Q. And you didn't do it in Petrobras, 25 it more likely that you get the correct 25 not because it wasn't the correct Page 152 Page 153 Steven P, Feinstein, Ph.D 1 1 Steven P, Feinstein, Ph.D. 2 methodology, but just because there were so 2 was the best balance. 3 many dates that you thought you would be 3 Q. When constructing a test like this, 4 4 criticized for dummying out so very many you have to make choices; is that right? 5 5 A. Yes. Yes. dates? 6 6 Q. And your choice in that case was not A. Right. There are cases where 7 experts have been excluded for having too 7 to dummy out the dates that were being 8 many variables dummied out in their 8 otherwise tested, correct? A. Correct. 9 9 regressions. 10 10 And being cognizant of the fact of Q. And in that case, you felt justified that, but also the fact that, if anything, 11 11 in doing that, in part, because not 12 it would bias the results towards a finding 12 dummying out those dates would bias the 13 13 of inefficiency, I chose that as the test in favor of the defendants; is that correct approach for that case, given that 14 14 right? 15 15 A. No, I -- could I hear your question set of facts. 16 Q. Now, would it have been possible in 16 again. 17 17 that case for you to just dummy out the Q. Sure. earnings dates and not the 6-K dates? 18 18 In that case, you felt justified in 19 A. Anything's possible. That just 19 not dummying out the dates, in part, 20 20 because that would bias the test in favor simply would have opened the door towards 21 criticism of why did I stop at the earnings 21 of the defendants, correct? 22 22 dates? A. Yes. The course that I did choose, 23 I mean, there's a wide range of 23 if anything, would have -- would bias the 24 reasonable approaches, each with advantages 24 result in favor of the defendants. So I 25 and disadvantages. What I did, I think, 25 chose the more conservative approach, at

Page 154 Page 155 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 least conservative from the perspective of valuation principles that are usually 3 3 the plaintiff -- for the plaintiff's side. covered in conference calls, but that 4 Q. In the Petrobras case? 4 investors and analysts understood that this 5 5 A. In the Petrobras case. is a political creature, Freddie Mac, and 6 Q. Now, in the FDT z-test that you 6 the political environment had a lot to do 7 conducted here, when you selected dates, 7 with the fortunes of this company and the 8 8 you -- how did you go about your selection future fortunes of this company and the 9 9 valuation of this company. process? 10 10 A. I read the news. I read the analyst So the kind of news that it appeared 11 reports. I read the documents that we 11 from reading the analyst reports and the 12 talked about. And -- well, along the way, 12 news articles, the kind of news that people 13 I made a decision that I would not retread 13 seemed to be concerned about from that part 14 over the same ground that Hallman and Bajaj 14 of the Cammer and Krogman analysis was had covered. 15 15 looking at news articles and analyst 16 And it became -- I observed that 16 coverage, informed me that for the 17 strictly from -- strictly from the 17 empirical test I should choose a rule that 18 fundamental economic valuation perspective, 18 would somehow capture information flow 19 there just didn't seem to be a -- from 19 about the political environment in which 20 20 reading the news and the analyst reports, I Freddie Mac was operating. 21 realized that this is a unique company, 21 And so, I gave it a lot of thought. 22 that it -- that what investors cared and 22 I discussed the matter with my team. And 23 23 we thought that rather than pick -- that were concerned about frequently, what they 24 asked questions about at conference calls 24 any rule that was completely subjective 25 was more than just the fundamental 25 that I would come up with myself about what Page 156 Page 157 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D. 2 kind of information should be moving the 2 So in order to run the test, I 3 market would be open to criticism because 3 needed some rule that would separate days 4 4 and events into, like, extraordinarily high it would be highly subjective, and it's 5 5 important to have an objective rule that news flow versus lesser news flow. 6 6 could be replicable, and the objective rule The Wall Street Journal is a 7 had to take into account the financial as 7 preeminent financial news source, and New 8 8 well as the political news flow for this York Times is the, if not one of the, 9 company. And it made sense to let the news 9 preeminent news sources for everything 10 10 media choose which events were high news else. 11 11 flow days and which events were low news So the rule was that if both 12 flow days. 12 companies -- if both news sources cover an I then looked back at our files of 13 13 event, one could be pretty sure that this 14 was an important event in the life of the 14 news articles and saw that there's 2,900 15 15 articles, not that just mentioned Freddie company. 16 Mac -- there's actually more than that that 16 That was the process by which I mention Freddie Mac -- it's 2.900 that 17 17 arrived at that rule. Factiva identifies where Freddie Mac's the 18 18 Q. And you arrived at that rule in 19 subject of the articles. So it's quite 19 connection with your work in this case? 20 20 A. Yes. extensive news coverage. 21 And if I would pick every one of 21 Q. You've never used that rule in any 22 prior case, correct? 22 those dates, it wouldn't be separating high A. Correct. 23 news flow from low news flow. They'd all 23 24 be picked. All dates would be considered 24 Q. Now, the methodology that you 25 25 usually use for an FDT z-test on those news dates.

Page 158 Page 159 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 2 several occasions when you've done it is 2 Q. What was your opinion? 3 3 A. I did look at the analyst reports looking at company announcements, like 4 earnings guidance or Form 6-K, correct? 4 for each -- well, I looked at all the 5 5 A. Right. analysts reports, but I reviewed -- again, 6 6 Q. And here, you didn't use earnings in another phase of the research -- the 7 7 announcements because you already knew that analyst reports, specifically responding to 8 Dr. Hallman had studied those earnings 8 the earnings announcement dates, and I saw 9 announcements and that, if you had run a 9 that, in fact, they just were not -- they 10 10 test on those announcements, it would have were mixed news or expected news and not 11 yielded statistically insignificant 11 the kind of news that would reasonably 12 results, correct? 12 elicit a statistically significant response 13 13 for the majority of them. A. It's not the results. It was the 14 conflict between Bajaj and Hallman that I 14 So I mean, I think, ultimately, 15 wanted to stay away from. 15 that's consistent with his conclusion. I mean, Hallman had some pretty 16 16 Q. Now, did you -- you reviewed 17 compelling arguments as to why his results 17 Dr. Bajaj's report as well, right? were what they were and why those results 18 18 A. Yes. 19 should be what they were in an efficient 19 Q. And did you disagree with all of 20 market. I just wanted to stay out of that 20 Dr. Bajaj's conclusions or only with some 21 fray entirely. 21 of them? 22 Q. Did you form an opinion as to 22 A. I, frankly, don't recall. I mean, 23 whether you agreed or disagreed with 23 it wasn't part of my scope to rebut his Dr. Hallman's opinions? 2.4 24 report, and I didn't memorialize my 25 A. Yes. 25 opinions about his report in my report. Page 160 Page 161 1 1 Steven P, Feinstein, Ph.D. Steven P, Feinstein, Ph.D 2 I'm sure there are things I agreed 2 Dr. Bajaj did not. 3 with and things I disagreed with. 3 Taking all that into account, I 4 4 Q. Now, at the time you were selecting don't know specifically what the result 5 5 dates for the FDT z-test, you were aware would be. 6 6 that if you had run an FDT z-test on the Q. You were aware at the time that you 7 earnings announcement dates that the 7 selected dates for your FDT z-test that 8 8 results would have been statistically Dr. Bajaj had already opined that only one 9 insignificant, right? 9 of those dates yielded statistically 10 A. I'm not sure. Because one thing I 10 significant results, correct? 11 MR. MARKOVITS: Objection. 11 did do, one thing I did agree with 12 Dr. Bajaj about was that I tested using a 12 A. I thought he said two did. I 13 13 thought he said two. He said two of his Chow test whether there was a structural earnings announcements did. break in the data. So I did break the data 14 14 15 at August 8, 2007, which I believe is 15 BY MR. FRANK: 16 something that Dr. Hallman did not do. 16 Q. Your memory was that Dr. Bajaj had So if I were to rerun his test, it 17 17 identified two statistically significant 18 would have been different for that reason. 18 dates among the earnings announcements? 19 I know that three earnings 19 A. That's my recollection. Yes, 20 20 announcement dates did show up in my z-test actually, that is what he said. because they were dates that The Wall 21 21 Q. Now --Street Journal and the New York Times each 22 22 A. And I think Dr. Bajaj said, no, it 23 reported on. And I did find the second to 23 was only one, but... MR. MARKOVITS: There's the 24 the last earnings announcement date to be 24 25 25 statistically significant, and I believe confusion. He was asking about Bajaj, and

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	you were just talking about Hallman.	2	what?
3	THE WITNESS: Oh, I'm sorry.	3	A. Statistically significant.
4	MR. FRANK: Let's make it	4	Q. Now, you were also aware, before you
5	clear, because I think you end up	5	selected your dates, that Dr. Bajaj had
6	testifying to something you don't believe	6	concluded that only one of the tested
7	because of that confusion.	7	earnings announcement dates yielded a
8	BY MR. FRANK:	8	statistically significant result,
9	Q. So	9	correct?
10	A. I think Dr. Bajaj said one was	10	A. Correct.
11	significant, and Dr. Hallman said two were	11	Q. Now, at Paragraph 137 of your
12	significant.	12	report, you write, "The event study shows
13	Does that clear it up?	13	that for the allegation-related event,
14	Q. Except for the fact that there was	14	there was a strongly statistically
15	no pending; almost.	15	significant price reaction to
16	So it was before you conducted	16	company-specific news."
17	your FDT z-test and chose your dates for	17	Do you see that?
18	that test, you knew that Dr. Hallman,	18	A. Yes.
19	plaintiff's selected expert, had concluded	19	Q. Did I read that correctly?
20	that only two of the earnings announcement	20	A. Yes.
21	dates were statistically significant,	21	Q. You then write, "This finding proves
22	correct?	22	that Freddie Mac common stock reacted to
23	A. Right. And he argued that the other	23	new information, and its market was
24	four reasonably should not have been.	24	efficient and, in particular, efficient
25	Q. Reasonably should not have been	25	with respect to the information at issue in
	Page 164		Page 165
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	this case."	2	that announcement.
3	Do you see that?	3	I or your counsel can ask you about
4	A. I do.	4	another announcements later.
5	Q. What is the information at issue in	5	But you're aware about announcements
6	this case?	6	to that effect, correct?
7	A. The disclosures that well, the	7	A. Yeah. But it's important to also
8	information about the risks the company was	8	realize that in the context of
9	bearing on account of its increased	9	countervailing assurances that what the
10	exposure to nontraditional higher-risk	10	market hears and what the market receives
11	loans, its ability to analyze loans and	11	might not be as clear as how you phrased
12	detect fraud, its capital adequacy, its	12	it.
13	adherence to underwriting standards, and	13	Q. Now, when you wrote "The finding
14	the impact of that information on the	14	proves that Freddie Mac common stock
15	company's likelihood of experiencing a loss	15	reacted to new information and its market
16	such as was experienced on November 20	16	was efficient," are you able to draw a
17	or announced on November 20, 2007.	17	conclusion that, from your single-day event
18	Q. Now, are you aware that prior to the	18	study, that Freddie Mac's market was
19	class period, Freddie Mac had disclosed	19	efficient on other days?
20	that it was increasing its purchases of	20	A. Well, let's break it down.
21	nontraditional mortgage loans and intended	21	I mean, from that single event, it's
	to continue doing so?	22	a demonstration that the stock did react to
22		23	
22 23	A. I'm aware of announcements to that	43	new information. So it is proof that the
	A. I'm aware of announcements to that effect. I'm aware of announcements that	24	new information. So it is proof that the stock did react to new information.
23			

Page 166 Page 167 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 2 2 So I don't know of applications that therefore, informationally efficient on 3 3 that day in reaction to that event. are exactly identical to this one and, in 4 There's no reason to believe that if 4 particular, this case over this period of 5 5 that event had occurred one day earlier, time. 6 6 But I believe that this inference is the reaction would have been any different 7 7 one day earlier, especially in light of the supported by the literature, and I could 8 8 be -- I can be more clear about that or Cammer and Unger factors that I analyzed. 9 So I believe that this demonstration 9 expound on it just for a moment. 10 It's -- the literature's -- there's 10 of market efficiency on that day is extendable to other days in the class 11 extensive literature on market efficiency, 11 12 period, all previous days in the class 12 and the literature accepts that there are 13 reasons for, a number -- a handful of 13 period. 14 Q. Is it your opinion -- well, strike 14 reasons for market inefficiency. And the 15 15 that. reasons that are often given are 16 16 Are you aware of any academic impediments to information flow, 17 literature that supports your opinion that 17 impediments to trading and investor 18 18 analysis of a single day is sufficient to irrationality. 19 19 prove market efficiency over the course of And what we see with this 20 20 a class period? demonstration, with this one event, is in 21 A. I mean, there aren't -- the 21 conjunction with the other Cammer and Unger 22 22 literature presents principles and factor is that there were no impediments to 23 23 methodologies and case studies and then information flow and there were no 2.4 impediments to trading. 24 expects researchers to be able to adapt 25 those to specific applications. 25 And this event shows us that, at Page 168 Page 169 Steven P, Feinstein, Ph.D 1 1 Steven P, Feinstein, Ph.D. 2 least then and there, the market was not 2 inefficiency and, therefore, make a claim 3 observably irrational. 3 that markets are inefficient. 4 4 So if this event allows us to rule It also follows that if you find a 5 5 out the three causes of inefficiency, then demonstration of efficiency, you can make a 6 6 determination, a deduction, that if the we can draw -- we can deduce from this 7 event that the market over the class period 7 structure of the market hadn't changed over 8 8 for Freddie Mac common stock was efficient. the entire class period that that 9 And that's -- it's --9 demonstration of market efficiency would Q. Well, let me ask you --10 10 apply to other dates as well. 11 11 A. I don't know of an article that lays O. Can you --12 out the syllogism that way, but every one 12 A. But there are -- it is in the 13 13 of the principles in my argument is in the literature where anecdotal or episodic evidence is used to make a deduction that's 14 literature. 14 15 Q. Are there any particular authors, 15 more broad. That happens all the time. 16 practitioners, scholars that you would 16 Q. Can you identify for me, as you sit identify who have written on the issue of 17 17 here today, a single textbook or article 18 18 the use of a single date in an event study that supports the proposition that a 19 proving market efficiency over a period of 19 demonstration of efficiency on one date 20 20 supports a conclusion of market efficiency time? 21 A. Yeah. Yes. I mean, there are 21 on other dates? 22 22 scholars and authors in the academic A. Well, like I said, I mean, I am 23 literature that draw inferences from single 23 reluctant to try. I'm reluctant to do so, 24 events all the time. 24 because you're asking me to recall from 25 25 memory the literature, the bibliography of They'll observe a single episode of

Page 170 Page 171 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 1 2 literature, and I can't do that. 2 factors and ignoring and study of Cammer 3 3 But even -- and when I get back to and Unger factors that apply to 1995? 4 4 my office, if you want me to review the Q. Yes. 5 5 literature, I can tell you that the way the A. No, I wouldn't draw that conclusion. 6 6 literature works is principles and concepts I wouldn't take a single-event event study 7 7 are tested and grounded and presented and in isolation, separated from all other work 8 8 I've done and draw a conclusion like that. adjudicated in the marketplace of ideas, 9 9 and then it's expected that people apply I would not. 10 10 these principles and methodologies to an Q. Now, include the Cammer and Unger 11 11 infinite number of applications. So I factors. 12 don't expect to find someone who has done 12 Do you think it's fair to conclude 13 13 exactly what I've done. But I do expect to that, based on your single-event event 14 find examples of people that have done 14 study and a consideration of the Cammer and 15 analysis and drawn conclusions similar to 15 Unger factors, that Freddie Mac's common 16 the manner in which I did in this. 16 stock traded in an efficient market in the 17 17 year 1995? Q. Do you think it's fair to draw a 18 18 conclusion based on your single-event event A. Well, are you saying that if the 19 study that Freddie Mac's common stock 19 Cammer and Unger factors that I studied for 20 20 traded in an efficient market in the year the class period were also similarly robust 21 21 to the period 1995? 1995? Q. Yes. 22 22 A. Based on just the single-event event A. So in other words, a Cammer and 23 23 study? 24 Q. Yes. 24 Unger factor that covered the period from 25 A. Ignoring the Cammer and Unger 25 1995 through 2007; that's 22 years. No, Page 172 Page 173 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D. 2 twelve years, right? 2 I wouldn't say I'm 100 percent I think in that hypothetical, I 3 3 absolutely iron-clad sure. But I would 4 4 would be reluctant to do that. certainly -- I would probably say -- I 5 5 Twelve years, I would be reluctant would say if all the Cammer and Unger 6 6 to do that. factors were satisfied to the degree 7 I expect that over the course of 7 they're satisfied over the class period, I 8 8 twelve years, I would be able to find more would say it's far more likely than not 9 events to test -- more appropriate events 9 that that stock is trading in an efficient 10 10 to test. And then I would only draw a market even in the absence of an empirical 11 11 conclusion after having done that analysis test. 12 to see if there are additional events to 12 Of course, I would want to run an 13 13 empirical test and see if there are test that are in closer proximity to 1995. demonstrations of either inefficiency, 14 Q. Assume that you just had the Cammer 14 15 15 which would change my mind, or and Unger factors, all of which were 16 satisfied with the exception of factor 16 efficiencies, which would add support to 17 17 five, you hadn't run any tests. the conclusion. But if there was some 18 18 If all of the factors are satisfied, reason that I couldn't run an empirical 19 but you run no economic tests, is that 19 test of any kind, the literature, the 20 20 sufficient economic evidence from which you empirics, what we know about the rest of 21 can conclude market efficiency? 21 the financial market would support a 22 22 conclusion that it's more likely than not A. I've thought about this question a 23 23 that that stock trades in an efficient lot. 24 It depends on your standard of 24 market. 25 25 proof, your standard of conclusion. Just for the record, this is

Page 174 Page 175 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 2 2 that might make a market inefficient. And important, so I want to make sure I explain 3 3 why. those are the kinds of things we foreclose 4 We know what kind of stocks from the 4 when we see that Freddie Mac handily 5 5 literature are likely to be inefficient. satisfied all of the Cammer factors being 6 6 large, well-covered, and actively traded I teach courses on security 7 7 with many market makers on the New York valuation and investments, and students ask 8 8 stock exchange. me, where should I look for wrongly or 9 undervalued stocks? And it's not just me, 9 Q. Now, assume the Cammer factors were 10 10 it's the chartered financial analysts met -- well, strike that. 11 curriculum has answers to this. 11 Assume the world as you have it. 12 You look at the small stocks that 12 You have assessed, as you have, the Cammer 13 13 and Krogman factors and you've run the are too small to be of concern to 14 institutional investors. You look at 14 tests that you have. 15 15 stocks where there's very little trading, A. Right. so that information is not being brought to 16 Q. Was Freddie Mac's stock price a 16 17 the marketplace via the trading mechanism. 17 stock trading in an efficient market in the 18 18 You look for stocks with no analyst 19 19 coverage, so that people are on their own A. I haven't drawn a conclusion about 20 20 making evaluations of what the valuation the year 2000. 21 is, and you might be more right than the 21 Q. What about August 1 of 2006? 22 22 other investor who's operating without the A. I think that's close. I mean, I did 23 23 support of analyst coverage. do Cammer and Unger analysis for that Those are the kinds of things you 2.4 period. And the two empirical tests that I 24 25 look for. Those are the kinds of things 25 ran are close enough in proximity to that Page 176 Page 177 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 2 date to support the finding of market 2 -- and that impacted the stock price, and 3 efficiency. 3 that people received the news, they 4 Q. Now, let's put aside the FDT z-test. 4 processed the news, the stock price reacted 5 5 Just the Cammer and Unger factors -- Cammer immediately. 6 6 and Krogman -- am I getting that wrong? So there's just no question about 7 A. Either. 7 that that event is a very strong, stark, 8 8 clear, indisputable demonstration of market MR. FRANK: They're 9 interchangeable, aren't they? 9 efficiency. 10 10 MR. MARKOVITS: Yes. Having said that, if I, for some 11 11 BY MR. FRANK: reason, was unable to run any other 12 O. So strike that. 12 empirical test, I would be less confident So put aside your FDT z-test. 13 13 in my conclusion than I am having had the 14 ability to run the additional empirical 14 A. Okay. Q. Assuming everything else is the 15 15 test. same, can you conclude that this market for 16 16 So there are degrees of confidence. 17 Freddie Mac's common stock was efficient as 17 I would be less confident without the 18 of the first day of the class period, 18 z-test than I am with the z-test. 19 August 1, 2006, even though your event 19 Q. Well, you, in your report, at the study only tested a single date, November 20 20 paragraph we were just looking at, you 21 20, 2007? 21 state that your single-date event study 22 proves that Freddie Mac's common stock 22 A. Well, I mean, I would take into 2.3 account that the event study result was 23 reacted to new information and its market 24 pretty dramatic. There's no question about 24 was efficient. 25 it that it was news and that the news was 25 Isn't that right?

Page 178 Page 179 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D. 2 2 A. It does. And the degree of proof if -- and we have proof for that particular 3 3 would be less based only -- if it had to be day, and maybe for a period of time in 4 4 based only on that result, than if I'm able closer proximity from that event. 5 5 to consider the other empirical results as But to extend it to the rest of the 6 6 class period, the rest of my analysis is well. 7 7 Q. But from your perspective, the not superfluous; it's necessary. 8 8 single-event event study was sufficient to Q. The single-event event study is not 9 9 prove that Freddie Mac's stock price was enough on its own to prove market 10 10 trading in an efficient market for the efficiency for the entirety of the class 11 11 entire class period; is that fair to say? period; isn't that correct? 12 A. No, no, it's not fair to say. 12 A. If you mean by that eliminating 13 13 Q. Why not? consideration of the Cammer and Krogman A. It doesn't say for the entire class 14 14 factors, it depends on what standard of period in Paragraph 137. It says that it 15 15 proof. 16 proved the market was efficient and it was 16 For some purposes it might be. 17 efficient with respect to the information 17 Maybe for the court, it would be. For me 18 18 at issue in this case. to stake my reputation on, it wouldn't be. I think the other Cammer and Krogman 19 19 By that's hypothetical, because in 20 factors -- the other factors, the Cammer 20 the real world, what I am staking my 21 and Krogman factors, and the other 21 reputation on is I ran many additional 22 22 tests: the Cammer test, the Krogman factor empirical test allow one to correctly 23 23 deduce that if this information had come test and the collective test. 24 out at an earlier day, you would have seen 24 Q. Now, let me give you a hypothetical. 25 a similar response on an earlier day. And 25 There's a manufacturing company. It Page 180 Page 181 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 2 has one manufacturing plant. It trades in 2 that news. 3 an inefficient market. We know that 3 And it's -- it may be, depending on 4 4 because the company doesn't meet any of the the specifics in the hypothetical, you can 5 5 Cammer and Krogman factors because draw an inference that if that event had 6 6 economists have tested how its stock price happened a week earlier, two weeks earlier, 7 performs using every test of which you're 7 a month earlier or a year earlier, it would 8 aware. It is not efficient, the market in 8 have -- the market would have reacted 9 9 efficiently with respect to that news on which it trades. 10 10 On a single day, the sole those days as well. 11 11 manufacturing plant of this manufacturing Q. Well, for purposes of my 12 company burns to the ground; a total loss. 12 hypothetical, the stock is trading in an 13 13 That event gets covered in The Boston Globe inefficient market where generally material 14 and other major newspapers, including The 14 news does not affect the stock price. 15 Wall Street Journal and the New York Times. 15 Fair enough? 16 The stock price in that company 16 A. But with respect to information 17 17 falls dramatically, such that if you tested about a fire, it suddenly becomes efficient 18 the stock price on that date using a 18 is what you're saying? 19 single-date event study, you would find 19 So that's how your hypothetical 20 20 statistical significance. works. It's inefficient, but with respect 21 Is it possible that the stock price 21 to a certain category of news, it is 22 22 would fall in that scenario, given the fact efficient. 23 that the market is generally inefficient? 23 Q. Well, let's change the hypo 24 A. It's possible it would be efficient 24 slightly. 25 25 that day with respect to that episode and A. Okay.

Page 182 Page 183 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 Q. A manufacturing company, trading in 2 Q. Is it not possible for securities 3 3 an inefficient market. The manufacturing that trade in inefficient markets to 4 4 facilities burn to the ground. sometimes, but not always, respond 5 5 Is it possible in an inefficient appropriately to material news? 6 6 A. It's possible. And that's why market for the stock price to decline in a 7 7 statistically significant way upon the testing market efficiency, I run a battery 8 8 reporting of that event? of tests. I don't base my decision on only 9 9 A. Well, the definition of one result. Each result contributes or --10 10 "inefficiency" is that people ignore contributes to whatever the conclusion may information. They disregard material 11 11 be, one way or the other. 12 information. It's overlooked. It's too 12 Q. Now, having run the tests that you 13 13 small. Nobody really cares. ran, is it possible for you to conclude 14 It's -- and it's unlikely that you 14 that Freddie Mac's common stock traded in would see a significant stock price an efficient market in July of 2006? 15 15 16 16 reaction if the stock is overlooked and A. I didn't test for July of 2006. 17 disregarded by the marketplace. 17 I -- if I were asked to test for 18 On the other hand, if you do observe 18 July of 2006, I would run all the tests 19 that it's -- that people care about this 19 that I ran over that extended period. I 20 company when this kind of information's 20 would look at Cammer factors, Unger and 21 available, that would be a demonstration 21 Krogman factors, and see if there also were good candidates for empirical testing in 22 that the -- that that company, while it may 22 23 23 be inefficient with respect to other that additional month. 24 information, is efficient with respect to 24 I started my analysis in August 25 that kind of information. 25 of 2006. Page 184 Page 185 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 Q. So having run the tests that you 2 A. Correct, as a result of the rule not 3 ran, you believe you can conclude that 3 finding any dates in that period. 4 4 Q. Well, when you say "the rule," what Freddie Mac's common stock traded in an 5 efficient market in August of 2006? 5 rule are you referring to? 6 6 A. Yes. A. The Wall Street Journal and the 7 Q. Now, you didn't test any dates in 7 New York Times coverage rule. 8 8 August of 2006, correct? Q. I was asking about both tests. 9 A. I didn't do the -- I didn't do event 9 A. Okay. Well, the -- for the 10 study tests on dates in 2006, but I did 10 collective test, the New York Times and 11 11 Cammer and Krogman factor tests for 2006. Wall Street Journal media coverage test. 12 Q. When it comes to factor 5 of --12 And for individual event dates, I was A. And the rule wasn't temporally 13 13 looking -- we already talked about what my selection criteria were: momentous 14 isolate it. I didn't -- the rule wasn't I 14 15 would only look for these kind of events in 15 red-letter dates where the news flow was 16 2007. 16 such that it appeared in an unconfounded 17 17 The rule dictated that the events and unexpected way that would reasonably 18 18 were -- appeared in 2007 and in 2006, move the stock price, not just a little 19 apparently, from the perspective of the New 19 bit, but over the threshold for statistical 20 York Times and the Wall Street Journal, was 20 significance. 21 fairly calm for Freddie Mac, which is why 21 And I didn't find dates like that 22 22 no events showed up in that period. between August 2006, actually, until the 23 Q. You didn't test in either your 23 last one. The nature of this company, it's 24 single-event event study or your FDT z-test 24 a fairly unique company. 25 25 MR. FRANK: Bill, this is a any dates in the year 2006, correct?

Steven P, Feinstein, Ph.D good time for a lunch break, if you would like to take one. MR. MARKOVITS: That's fine. MR. FRANK: Off the record, please. THE VIDFOGRAPHER: We're going off the record at 12:26. (Recess taken from 12:26 p.m. to 1:16 p.m.) THE VIDEOGRAPHER: We're back on the record at 1:16. MR. FRANK: THE VIDEOGRAPHER: We're back on the record at 1:16. MR. FRANK: PRAMK: MR. FRANK: Co. Good afternoon, Dr. Feinstein. A. Good afternoon in the record at 1:16. Steven P, Feinstein, Ph.D A. Kyes. Q. This list is incomplete; is that right? A. Good afternoon, Dr. Feinstein. A. Good afternoon in the record at 1:16. That's on Page 48 of your report. Page 188 Steven P, Feinstein, Ph.D (Recess taken from 12:26 p.m. to 1:16 ymm.) (Recess taken from 12:26 p.m. to 1:16 ymm.) (Recess taken from 12:26 p.m. to 1:16 ymm.) Lit in to 1:16 ymm.) Co. Good afternoon, Dr. Feinstein. A. Good afternoon in the record at 1:16. Exhibit 96. This is your report. A. Kight. It's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of document. There's a number of editions of it, but if's one type of		Page 186		Page 187
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The VIDEOGRAPHER: We're back on the record at 12:26 p.m. 10 (Recess taken from 12:26 p.m. 10 (Recess taken from 12:26 p.m. 11 to 1:16 p.m.) 12 12 13 THE VIDEOGRAPHER: We're back on the record at 12:16. 14 15 15 15 15 15 15 15				
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17 Q. Good afternoon, Dr. Feinstein. 18 A. Good afternoon. 20 Let me turn your attention back to 21 A. Okay. 22 Q. Do you have that before you? 23 A. I do. 24 Q. Do me a favor, turn to Exhibit 1. 25 That's on Page 48 of your report. 26 Exhibit No. 106 marked for identification.) 27 Inat's on Page 48 of your report. 28 Steven P, Feinstein, Ph.D 29 (Exhibit No. 106 marked for identification.) 29 Q. Did you request them from counsel? 30 Identification.) 40 Steven P, Feinstein, Ph.D 41 Steven P, Feinstein, Ph.D 42 (Exhibit No. 106 marked for identification.) 43 Steven P, Feinstein, Ph.D 44 A. I simply the you a set of identification.) 44 A. At some point, I did. Not specifically, but I asked if there was anything generally like this that they had, and this is what arrived. 45 BY MR. FRANK: 46 I'm sharing with you a set of documents marked as Exhibit 104. 47 I will represent to you that this is the set of documents that Mr. 48 I will represent to you that this is the set of documents that Mr. 49 Q. Do you recognize the documents that are collected and marked Exhibit 15 me. 40 Q. Do you recognize the documents that are collected and marked Exhibit 16 104? 41 A. I do. 42 Q. Do you recognize the documents that are collected and marked Exhibit 15 price over time. 43 A. Yes. 44 Q. Do you recognize the documents that 15 are collected and marked Exhibit 15 price over time. 45 Price over time. 46 Q. And do you rely upon these documents in forming the conclusions that are set forth in your report? 47 A. I do. 48 Q. Now, what are these documents? 49 A. This is - these are reports row that 15 price over time. 40 Q. And do you rely upon them. I don't generally rely on them. I don't generally rely on them. I don't generally rely on them, but I do-tot they do add support to my conclusion. 49 That's one a favor, turn to Exhibit 15 price over time. 40 A. I don't - I didn't rely on them. I don't generally rely on them, but I do-tot they do add support to my conclusion. 49 That's one a favor, turn to Exhibit 15 price over time. 40 A.				
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	Page 190		Page 191
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	with.	2	Q. Is there any other information in
3	Q. And when did you come into	3	this August 2006 document that you believe
4	possession of the documents that have been	4	supports any of the conclusions you've
5	marked as Exhibit 104?	5	drawn in your report?
6	A. I don't recall specifically, but I	6	A. Well, what I said was the main
7	do know it was prior to filing the report.	7	thing that I recall, and how it how I
8	Q. And let's take a look at the first	8	recalled that it supported my conclusion.
9	document that is collected in Exhibit 104.	9	But reviewing the document well,
10	This is a document that's entitled	10	Page 6 talks about how the analyst
11	"Equity Investor Relations Monthly Update,	11	coverage it talks about analyst
12	August 2006."	12	coverage. I mean, that just supports what
13	Do you see that?	13	I found about analyst coverage that was
14	A. Yes.	14	extensive.
15	Q. And what is it in this document in	15	But it says specifically in this
16	particular that you believe supports any of	16	particular month's version or edition,
17	the conclusions that you've reached in your	17	"Credit Suisse and Merrill Lynch downgrade
18	report?	18	Freddie Mac stock to hold in early June
19	A. (Witness reviews document.)	19	based upon concerns over increased
20	It's Page 5 with I guess the	20	regulatory risk, potential portfolio caps,
21	Bates number 630 is a price chart, a	21	and delayed time frame to return excess
22	volume chart and price chart, and it's	22	capital to shareholders."
23	annotated with various price movements	23	So, again, it's attributing
24	pointed out in an information explanation	24	valuation impacts to information. It's
25	for why the price moved on those days.	25	another page in the document that does
	Page 192		Page 193
			rage 193
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	that.	2	Steven P, Feinstein, Ph.D
2 3	that. Q. Now, you don't reference any of the	2 3	Steven P, Feinstein, Ph.D BY MR. FRANK:
2 3 4	that. Q. Now, you don't reference any of the reports that are set forth in Exhibit	2 3 4	Steven P, Feinstein, Ph.D BY MR. FRANK: Q. I'm showing you a document that has
2 3 4 5	that. Q. Now, you don't reference any of the reports that are set forth in Exhibit 104 anywhere in your report, correct?	2 3 4 5	Steven P, Feinstein, Ph.D BY MR. FRANK: Q. I'm showing you a document that has been marked as Exhibit 105.
2 3 4 5 6	that. Q. Now, you don't reference any of the reports that are set forth in Exhibit 104 anywhere in your report, correct? A. That's right.	2 3 4 5 6	Steven P, Feinstein, Ph.D BY MR. FRANK: Q. I'm showing you a document that has been marked as Exhibit 105. Is Exhibit 105 the article that we
2 3 4 5 6 7	that. Q. Now, you don't reference any of the reports that are set forth in Exhibit 104 anywhere in your report, correct? A. That's right. Q. And you didn't include them on	2 3 4 5 6 7	Steven P, Feinstein, Ph.D BY MR. FRANK: Q. I'm showing you a document that has been marked as Exhibit 105. Is Exhibit 105 the article that we have been referring to today as the FDT
2 3 4 5 6 7 8	that. Q. Now, you don't reference any of the reports that are set forth in Exhibit 104 anywhere in your report, correct? A. That's right. Q. And you didn't include them on Exhibit 1 of your report, right?	2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D BY MR. FRANK: Q. I'm showing you a document that has been marked as Exhibit 105. Is Exhibit 105 the article that we have been referring to today as the FDT article?
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	that. Q. Now, you don't reference any of the reports that are set forth in Exhibit 104 anywhere in your report, correct? A. That's right. Q. And you didn't include them on Exhibit 1 of your report, right? A. Well, that was that was an oversight. It should have been included. Q. Were there any other documents or other information that you considered that you did not include in Exhibit 1 as a result of an oversight? A. Not that I'm aware of. Q. And when did you come to realize	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Steven P, Feinstein, Ph.D BY MR. FRANK: Q. I'm showing you a document that has been marked as Exhibit 105. Is Exhibit 105 the article that we have been referring to today as the FDT article? A. Yes. Q. This is the is this the only academic literature on the application of the z-test to assessing market efficiency in securities cases? A. No. Q. What other articles would you
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	that. Q. Now, you don't reference any of the reports that are set forth in Exhibit 104 anywhere in your report, correct? A. That's right. Q. And you didn't include them on Exhibit 1 of your report, right? A. Well, that was that was an oversight. It should have been included. Q. Were there any other documents or other information that you considered that you did not include in Exhibit 1 as a result of an oversight? A. Not that I'm aware of. Q. And when did you come to realize that you had failed to identify the documents collected in Exhibit 104 as among the documents that you considered and listed in Exhibit 1?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Steven P, Feinstein, Ph.D BY MR. FRANK: Q. I'm showing you a document that has been marked as Exhibit 105. Is Exhibit 105 the article that we have been referring to today as the FDT article? A. Yes. Q. This is the is this the only academic literature on the application of the z-test to assessing market efficiency in securities cases? A. No. Q. What other articles would you identify that discuss the application of the z-test to assessing market efficiency in securities cases? A. My recollection is there's an article by Hartzmark. I think it's
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	that. Q. Now, you don't reference any of the reports that are set forth in Exhibit 104 anywhere in your report, correct? A. That's right. Q. And you didn't include them on Exhibit 1 of your report, right? A. Well, that was that was an oversight. It should have been included. Q. Were there any other documents or other information that you considered that you did not include in Exhibit 1 as a result of an oversight? A. Not that I'm aware of. Q. And when did you come to realize that you had failed to identify the documents collected in Exhibit 104 as among the documents that you considered and listed in Exhibit 1? A. Yesterday, while preparing for the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Steven P, Feinstein, Ph.D BY MR. FRANK: Q. I'm showing you a document that has been marked as Exhibit 105. Is Exhibit 105 the article that we have been referring to today as the FDT article? A. Yes. Q. This is the is this the only academic literature on the application of the z-test to assessing market efficiency in securities cases? A. No. Q. What other articles would you identify that discuss the application of the z-test to assessing market efficiency in securities cases? A. My recollection is there's an article by Hartzmark. I think it's Hartzmark and Seyhun.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	that. Q. Now, you don't reference any of the reports that are set forth in Exhibit 104 anywhere in your report, correct? A. That's right. Q. And you didn't include them on Exhibit 1 of your report, right? A. Well, that was that was an oversight. It should have been included. Q. Were there any other documents or other information that you considered that you did not include in Exhibit 1 as a result of an oversight? A. Not that I'm aware of. Q. And when did you come to realize that you had failed to identify the documents collected in Exhibit 104 as among the documents that you considered and listed in Exhibit 1?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D BY MR. FRANK: Q. I'm showing you a document that has been marked as Exhibit 105. Is Exhibit 105 the article that we have been referring to today as the FDT article? A. Yes. Q. This is the is this the only academic literature on the application of the z-test to assessing market efficiency in securities cases? A. No. Q. What other articles would you identify that discuss the application of the z-test to assessing market efficiency in securities cases? A. My recollection is there's an article by Hartzmark. I think it's Hartzmark and Seyhun. Q. That's one article?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	that. Q. Now, you don't reference any of the reports that are set forth in Exhibit 104 anywhere in your report, correct? A. That's right. Q. And you didn't include them on Exhibit 1 of your report, right? A. Well, that was that was an oversight. It should have been included. Q. Were there any other documents or other information that you considered that you did not include in Exhibit 1 as a result of an oversight? A. Not that I'm aware of. Q. And when did you come to realize that you had failed to identify the documents collected in Exhibit 104 as among the documents that you considered and listed in Exhibit 1? A. Yesterday, while preparing for the deposition.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D BY MR. FRANK: Q. I'm showing you a document that has been marked as Exhibit 105. Is Exhibit 105 the article that we have been referring to today as the FDT article? A. Yes. Q. This is the is this the only academic literature on the application of the z-test to assessing market efficiency in securities cases? A. No. Q. What other articles would you identify that discuss the application of the z-test to assessing market efficiency in securities cases? A. My recollection is there's an article by Hartzmark. I think it's Hartzmark and Seyhun. Q. That's one article? A. Yes.
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1 Steven P, Feinstein, Ph.D 2 application of z-test for the purpose of 3 assessing market efficiency in securities 4 cases? 5 A. No, not if you mean published 6 articles. 7 Q. Is this article a peer-reviewed 8 article? 9 A. I believe it's not, in the sense 10 that it's usually how the term's usually 11 used. 12 Q. How is the term usually used? 13 A. Well, it's not an academic this 14 is a law review article. It's not an 15 economic or finance academic journal. 16 Q. And you did an FDT z-test here,
application of z-test for the purpose of assessing market efficiency in securities cases? A. No, not if you mean published articles. Q. Is this article a peer-reviewed article? A. I believe it's not, in the sense that it's usually how the term's usually cused. Q. How is the term usually used? A. Well, it's not an academic this is a law review article. It's not an economic or finance academic journal. 2 Q. At the bottom of Page 119, it the authors write, "Because stock prices move all the time, one must compare the movements in response to news stories with a control group of prices." Do you see that? A. Yes. Q. And you agree with that statement, right? A. Well, for purposes of this test, yes. Q. For purposes of the FDT z-test, right? A. That's right.
assessing market efficiency in securities cases? A. No, not if you mean published articles. Q. Is this article a peer-reviewed article? A. I believe it's not, in the sense that it's usually how the term's usually used. Q. How is the term usually used? A. Well, it's not an academic this is a law review article. It's not an economic or finance academic journal. authors write, "Because stock prices move all the time, one must compare the movements in response to news stories with a control group of prices." Do you see that? A. Yes. Q. And you agree with that statement, right? A. Well, for purposes of this test, yes. Q. For purposes of the FDT z-test, right? A. That's right.
4 cases? 4 all the time, one must compare the 5 A. No, not if you mean published 6 articles. 7 Q. Is this article a peer-reviewed 8 article? 9 A. I believe it's not, in the sense 10 that it's usually how the term's usually 11 used. 12 Q. How is the term usually used? 13 A. Well, it's not an academic this 14 is a law review article. It's not an 15 economic or finance academic journal. 4 all the time, one must compare the movements in response to news stories with a control group of prices." Do you see that? A. Yes. 9 Q. And you agree with that statement, right? A. Well, for purposes of this test, 12 yes. 13 Q. For purposes of the FDT z-test, 14 right? 15 A. That's right.
4 cases? 4 all the time, one must compare the 5 A. No, not if you mean published 6 articles. 7 Q. Is this article a peer-reviewed 8 article? 9 A. I believe it's not, in the sense 10 that it's usually how the term's usually 11 used. 12 Q. How is the term usually used? 13 A. Well, it's not an academic this 14 is a law review article. It's not an 15 economic or finance academic journal. 4 all the time, one must compare the movements in response to news stories with a control group of prices." Do you see that? A. Yes. Q. And you agree with that statement, right? A. Well, for purposes of this test, 12 yes. Q. For purposes of the FDT z-test, 13 A. That's right.
A. No, not if you mean published articles. Q. Is this article a peer-reviewed article? A. I believe it's not, in the sense that it's usually how the term's usually used. Q. How is the term usually used? A. Well, it's not an academic this is a law review article. It's not an economic or finance academic journal. A. No, not if you mean published articles. movements in response to news stories with a control group of prices." Do you see that? A. Yes. Q. And you agree with that statement, right? A. Well, for purposes of this test, yes. Q. For purposes of the FDT z-test, right? A. That's right.
articles. Q. Is this article a peer-reviewed article? A. I believe it's not, in the sense that it's usually how the term's usually used. Q. How is the term usually used? A. Well, it's not an academic this is a law review article. It's not an economic or finance academic journal. A control group of prices." Do you see that? A. Yes. Q. And you agree with that statement, right? A. Well, for purposes of this test, yes. Q. For purposes of the FDT z-test, right? A. That's right.
7 Do you see that? 8 article? 9 A. I believe it's not, in the sense 10 that it's usually how the term's usually 11 used. 12 Q. How is the term usually used? 13 A. Well, it's not an academic this 14 is a law review article. It's not an 15 economic or finance academic journal. 7 Do you see that? 8 A. Yes. 9 Q. And you agree with that statement, 10 right? 11 yes. 12 yes. 13 Q. For purposes of the FDT z-test, 14 right? 15 A. That's right.
8 article? 9 A. I believe it's not, in the sense 10 that it's usually how the term's usually 11 used. 12 Q. How is the term usually used? 13 A. Well, it's not an academic this 14 is a law review article. It's not an 15 economic or finance academic journal. 8 A. Yes. 9 Q. And you agree with that statement, 10 right? 11 A. Well, for purposes of this test, 12 yes. 13 Q. For purposes of the FDT z-test, 14 right? 15 A. That's right.
A. I believe it's not, in the sense that it's usually how the term's usually used. 10
that it's usually how the term's usually used. 10 right? 11 A. Well, for purposes of this test, 12 Q. How is the term usually used? 13 A. Well, it's not an academic this 14 is a law review article. It's not an 15 economic or finance academic journal. 10 right? 11 A. Well, for purposes of the FDT z-test, 12 yes. 13 Q. For purposes of the FDT z-test, 14 right? 15 A. That's right.
11 used. 12 Q. How is the term usually used? 13 A. Well, for purposes of this test, 14 is a law review article. It's not an 15 economic or finance academic journal. 11 A. Well, for purposes of this test, 12 yes. 13 Q. For purposes of the FDT z-test, 14 right? 15 A. That's right.
12 Q. How is the term usually used? 13 A. Well, it's not an academic this 14 is a law review article. It's not an 15 economic or finance academic journal. 16 yes. 17 Q. For purposes of the FDT z-test, 18 right? 19 A. That's right.
13 A. Well, it's not an academic this 14 is a law review article. It's not an 15 economic or finance academic journal. 18 Q. For purposes of the FDT z-test, 19 right? 10 A. That's right.
 is a law review article. It's not an economic or finance academic journal. A. That's right.
economic or finance academic journal. 15 A. That's right.
\mathcal{F}
1 10 O. And afficies that are published in 1 10 O. And you did an TD1 7-lest here.
economic or finance academic journals are 17 right?
18 generally subject a peer-review process? 18 A. Yes.
Q. Now, let me turn your attention to 23 perform a news search."
Page 119 of the FDT article. 24 Do you see that?
25 A. Okay. 25 A. Yes.
Page 196 Page 197
1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D
2 Q. And you did look at a sample of days 2 Do you see that?
3 in a class period in this case, right? 3 A. Well, I see that.
4 A. Yes. 4 Q. And do you agree with that?
5 Q. But you did not exclude those days 5 A. Well, I would agree that they should
6 alleged to be corrected disclosures, 6 be excluded from the control group, but I
7 right? 7 do not agree they should be excluded from
8 A. From the control group, I did. It 8 the sample of news days that are selected
9 wasn't it wasn't in the control group. 9 by the news day rule.
The control group is the non-news 10 Q. Isn't it fair to say that plaintiffs
11 days. 11 normally choose a class period where a
Q. Well, is it is a control group 12 corrective disclosure coincides with a
isn't the control group all of the other large negative price movement?
days in the class period other than the 14 A. Often, but not always. Sometimes
15 sample? 15 plaintiffs think there is a large residual
16 A. Yes. 16 decline and when I do the analysis, I find
Q. And if you look at Footnote 155, the 17 that it's not.
authors write, "The examination would 18 But I think that the day should be
exclude those days in which a corrective 19 included as an event day if the rule says
disclosure was made because plaintiffs 20 it should be included as an event day and
would normally choose a class period where 21 if there's good, objective foundation a
corrective disclosures coincide with large 22 good, objective foundation for assessing
negative price movements. Including those 23 that it belongs in the news day category,
days in the analysis would bias the 24 that it was a high information flow day.
25 results." 25 I do not agree that it should be

Page 198 Page 199 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 excluded because it's a corrective unusually high information flow date and 3 3 disclosure. belongs in a study of high information flow 4 4 Q. Isn't it fair to say that if dates, especially when the objective event 5 5 economists conducted event studies that selection rule is that it's covered -- that 6 6 the event is covered by the New York Times were based on solely a single date and always chose the last day of a class period 7 7 and the Wall Street Journal. 8 8 in a securities case, that that would bias Q. And it's your interpretation of 9 results in favor of a findings of market 9 these sentences that we read that the 10 10 efficiency? authors are solely referring to excluding A. No. 11 the last day of the class period or 11 12 O. Why not? 12 corrective disclosure date from the control A. Well, I mean, if you mean bias in 13 13 group and not from the sample or -- strike 14 the sense that it's going to produce a 14 that. That was confusing. result that's not indicative of the 15 15 You see where it says in Footnote 16 16 underlying truth, I don't believe that's 155, "The examination would exclude those 17 17 days in which a corrective disclosure was the case. 18 18 made." I mean, in this particular case, 19 taking that as a hypothetical and using 19 Do you see that? 20 this case as an example, I mean, it's 20 A. I see that. 21 indisputable that that was a high 21 Q. Is it your understanding that the 22 information flow date, November 20, and 22 authors, in describing the examination, 23 23 whether there's a lawsuit or not is were describing both the selection of a 24 completely inconsequential to the 24 sample of days as well as the control 25 determination that that was a high -- an 25 group? Page 200 Page 201 1 1 Steven P, Feinstein, Ph.D. Steven P, Feinstein, Ph.D. 2 A. It's not entirely clear what they 2 assessing market efficiency through the use 3 3 of an event study that evaluates a single meant. 4 4 I mean, in the paragraph -- in the 5 5 sentence that's footnoted, that the A. Well, I think they -- I know that 6 6 David Tabak generally opines that single -footnote is attached to, they're talking 7 about the control group. But if they do 7 single-event event studies are never enough 8 8 mean that you cannot consider corrective evidence. It's his belief that there's 9 disclosures in assessing market efficiency, 9 never enough dates to test -- to draw 10 10 I would say they're wrong. conclusions. 11 11 I mean, that would be an area where I disagree with him about that. 12 we disagree. I accept their methodology in 12 Dunbar is no longer with us. I 13 13 general but do believe that you should look can't tell you what he thinks. at the red-letter dates in the life of the I don't -- I don't know of any of 14 14 15 company, and if they can be objectively and 15 the others opining one way or the other. 16 indisputably identified as news dates, then 16 Q. Now, when it comes to a z-test, what 17 17 it doesn't matter whether lawyers have also is the null hypothesis for a z-test? identified those as important dates for 18 18 A. That the market ignores relevant 19 19 information; that the market disregards their purposes. 20 20 Q. Are you aware of this article information in determining the stock price. 21 discussing anywhere a single-date event 21 Q. Now, is it your view that Ferrillo, 22 22 study as a -- well, strike that. Dunbar and Tabak are authorities on 23 Are you aware of the authors, either 23 z-tests? A. It depends how you define 24 collectively or individually, of this 24 25 25 article ever writing about the subject of "authority."

	Page 202		Page 203
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	They wrote this article. They give	2	this sentence into the record previously.
3	credit for being the first to apply that	3	This is where you describe the z-test.
4	type of test to this type of problem.	4	Do you see it?
5	Q. And you cite this article regularly	5	A. Yes.
6	in your work, correct?	6	Q. Then at the end you drop to Footnote
7	A. Yes.	7	4, correct?
8	Q. And you cited them in your report in	8	A. Yes.
9	this case, right?	9	Q. And in Footnote 4, you say, "See,
10	A. Yes.	10	for example," and you list a number of
11	Q. And you cited the article in your	11	textbooks or other authorities; is that
12	declaration, right?	12	right?
13	A. Yes.	13	A. Yes. Those are authorities and
14	Q. And you've cited this article in	14	citations in the statistics literature to
15	many other reports, too, correct?	15	the incidence frequency test. That is,
16	A. Yes.	16	essentially, when applied to the question
17	Q. Now, turning to your declaration,	17	of market efficiency, the z-test the FDT
18	the z-test is you mention in	18	z-test.
19	Footnote 4, this is Exhibit 95, I believe,	19	Q. These are textbooks that you
20	on Page 6, that	20	selected that are authorities that discuss
21	A. My report now?	21	the z-test, generally, but not in the
22	Q. Your declaration. Exhibit 95.	22	context of securities cases; is that
23	Do you see Paragraph 22?	23	correct?
24	A. Yes.	24	A. That's right.
25	Q. There, it says I've actually read	25	71. That 5 fight.
	Q. There, it says I ve detainly read		
	Page 204		Page 205
1	Steven P, Feinstein, Ph.D	1	C DE' ' DID
2			Steven P, Feinstein, Ph.D
_	(Exhibit No. 106 marked for	2	Steven P, Feinstein, Ph.D we saw how to determine adequate sample
3	(Exhibit No. 106 marked for identification.)	2 3	we saw how to determine adequate sample size in order to test the hypothesis about
3	(Exhibit No. 106 marked for identification.)	2	we saw how to determine adequate sample
3		2 3	we saw how to determine adequate sample size in order to test the hypothesis about
3 4	identification.)	2 3 4	we saw how to determine adequate sample size in order to test the hypothesis about a population proportion using a sample
3 4 5	identification.) BY MR. FRANK: Q. You should have Dr. Feinstein, do	2 3 4 5	we saw how to determine adequate sample size in order to test the hypothesis about a population proportion using a sample proportion. When testing for differences
3 4 5 6	identification.) BY MR. FRANK:	2 3 4 5 6	we saw how to determine adequate sample size in order to test the hypothesis about a population proportion using a sample proportion. When testing for differences between two population proportions with two
3 4 5 6 7	identification.) BY MR. FRANK: Q. You should have Dr. Feinstein, do you have before you a document marked as	2 3 4 5 6 7	we saw how to determine adequate sample size in order to test the hypothesis about a population proportion using a sample proportion. When testing for differences between two population proportions with two sample proportions, the necessary criteria are defined a bit differently. The following three conditions must be met for
3 4 5 6 7 8	identification.) BY MR. FRANK: Q. You should have Dr. Feinstein, do you have before you a document marked as Exhibit 106?	2 3 4 5 6 7 8 9	we saw how to determine adequate sample size in order to test the hypothesis about a population proportion using a sample proportion. When testing for differences between two population proportions with two sample proportions, the necessary criteria are defined a bit differently. The following three conditions must be met for both samples to assure the sample sizes are
3 4 5 6 7 8 9 10	identification.) BY MR. FRANK: Q. You should have Dr. Feinstein, do you have before you a document marked as Exhibit 106? A. (Witness reviews document.) I do. Q. Exhibit 106 is an excerpt from a	2 3 4 5 6 7 8 9 10	we saw how to determine adequate sample size in order to test the hypothesis about a population proportion using a sample proportion. When testing for differences between two population proportions with two sample proportions, the necessary criteria are defined a bit differently. The following three conditions must be met for both samples to assure the sample sizes are sufficiently large enough to conduct a
3 4 5 6 7 8 9 10 11 12	identification.) BY MR. FRANK: Q. You should have Dr. Feinstein, do you have before you a document marked as Exhibit 106? A. (Witness reviews document.) I do. Q. Exhibit 106 is an excerpt from a document from a book, the title of which	2 3 4 5 6 7 8 9 10 11	we saw how to determine adequate sample size in order to test the hypothesis about a population proportion using a sample proportion. When testing for differences between two population proportions with two sample proportions, the necessary criteria are defined a bit differently. The following three conditions must be met for both samples to assure the sample sizes are sufficiently large enough to conduct a hypothesis test for differences."
3 4 5 6 7 8 9 10	identification.) BY MR. FRANK: Q. You should have Dr. Feinstein, do you have before you a document marked as Exhibit 106? A. (Witness reviews document.) I do. Q. Exhibit 106 is an excerpt from a document from a book, the title of which is "Applied Statistics for Public Policy,"	2 3 4 5 6 7 8 9 10 11 12 13	we saw how to determine adequate sample size in order to test the hypothesis about a population proportion using a sample proportion. When testing for differences between two population proportions with two sample proportions, the necessary criteria are defined a bit differently. The following three conditions must be met for both samples to assure the sample sizes are sufficiently large enough to conduct a
3 4 5 6 7 8 9 10 11 12 13	identification.) BY MR. FRANK: Q. You should have Dr. Feinstein, do you have before you a document marked as Exhibit 106? A. (Witness reviews document.) I do. Q. Exhibit 106 is an excerpt from a document from a book, the title of which is "Applied Statistics for Public Policy," by Brian P. Macfie and Philip Nufrio.	2 3 4 5 6 7 8 9 10 11 12 13 14	we saw how to determine adequate sample size in order to test the hypothesis about a population proportion using a sample proportion. When testing for differences between two population proportions with two sample proportions, the necessary criteria are defined a bit differently. The following three conditions must be met for both samples to assure the sample sizes are sufficiently large enough to conduct a hypothesis test for differences." Do you see that? A. Yes.
3 4 5 6 7 8 9 10 11 12 13 14 15	identification.) BY MR. FRANK: Q. You should have Dr. Feinstein, do you have before you a document marked as Exhibit 106? A. (Witness reviews document.) I do. Q. Exhibit 106 is an excerpt from a document from a book, the title of which is "Applied Statistics for Public Policy," by Brian P. Macfie and Philip Nufrio. Do you see that?	2 3 4 5 6 7 8 9 10 11 12 13 14 15	we saw how to determine adequate sample size in order to test the hypothesis about a population proportion using a sample proportion. When testing for differences between two population proportions with two sample proportions, the necessary criteria are defined a bit differently. The following three conditions must be met for both samples to assure the sample sizes are sufficiently large enough to conduct a hypothesis test for differences." Do you see that? A. Yes. Q. And then it provides three
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	But I would have to review	2	afterwards as a check, but they run the
3	conditions 2 and 3 to answer your question	3	diagnostics routinely.
4	for sure, but with 1, I could agree.	4	Q. So is it fair to say that you may
5	Q. As you sit here today, you know that	5	not have been aware of the diagnostics, one
6	you did not meet condition 1, which	6	or both of them, before you finalized your
7	requires that both samples need to have at	7	report?
8	least 30 observations each, correct?	8	A. No, that's not fair.
9	A. Right. But there are diagnostics to	9	The way our procedure is they run
10	run to test whether the test is legitimate,	10	the diagnostics when they run the tests.
11	robust to relaxation of these conditions	11	When I say, run the FDT test on this
12	and the results reliable, and those	12	data, they run that test and they run the
13	diagnostics were run. They're routinely	13	diagnostics, bring to my attention if
14	run by my team.	14	there's any issue with the diagnostics.
15	Q. Well, we're going to discuss the	15	Q. Now, they never brought to your
16	diagnostics.	16	attention that there was any issue with the
17	And I believe you testified a little	17	diagnostics; is that right?
18	bit about them earlier, correct?	18	A. Correct.
19	A. Yes.	19	Q. Do you instruct them what
20	Q. You ran two diagnostics, one before	20	diagnostics to run?
21	you finalized your report and one after,	21	A. Yes. I mean, we've talked about it
22	correct?	22	numerous times.
23	A. Well, my understanding is my team	23	Q. In other cases, you've run is the
24	runs the diagnostics when they run the	24	binomial test a diagnostic?
25	test. I might have asked about it	25	A. No, it's a different type of test.
20	test. I might have asked about it		71. Two, it's a different type of test.
	D 000		
	Page 208		Page 209
1		1	
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D Q. What are the	2	Steven P, Feinstein, Ph.D know that they are we've, in the past,
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2 3	probability if, in fact, information days	2	Q. I understand that as you sit here
	and noninformation days have the same	3	today, you can calculate you can
4	dynamics.	4	consider what the results of a binomial
5	Q. You didn't include the binomial test	5	test would be in your head; is that fair to
6	in your report, correct?	6	say?
7	A. Correct.	7	A. It was certainly considered during
8	Q. You didn't produce the calculations	8	the drafting of the report as well.
9	for a binomial test in your report,	9	Q. By whom?
10	right?	10	A. Me.
11	A. Right. But knowing what the result	11	Q. But you didn't put it in your
12	is gives me confidence that this test, as I	12	report, because you didn't think that it
13	presented it, is legitimate and valid and	13	was important enough to put in your report;
14	robust, notwithstanding that it there	14	is that fair to say?
15	aren't 30 observations in the information	15	A. That's right.
16	group.	16	Q. Now, your team routinely runs
17	Q. Who ran the well, let's back up.	17	bootstrapping and Fisher's exact
18	Did you or your team run a binomial	18	diagnostics tests, right?
19	test in this case?	19	A. That's right.
20	A. I we considered what we	20	Q. And if anything arises, they alert
21	considered what the results of a binomial	21	you to the fact, right?
22	test would be, and it's easy to do a quick	22	A. That's right.
23	calculation, even without a computer, that	23	Q. And if nothing arises, they don't
24	indicates that these are robust and valid	24	talk to you about those tests; is that
25	results.	25	correct?
20	resuits.	23	correct.
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1	_	1	
1	Steven P, Feinstein, Ph.D	1 2	Steven P, Feinstein, Ph.D
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	A. Right.	2	that the report was finalized?
3	Q. And you never knew what those	3	A. I asked if they were run. They said
4	numbers were, and as you sit here today,	4	they were run.
5	you don't know what they are, correct?	5	Q. You didn't get into the details of,
6	A. That's right.	6	when were they run?
7	Q. And a binomial test yields numbers,	7	A. No.
8	too, right?	8	Q. Now, with respect to category 2
9	A. That's right.	9	here, this condition, do you see where it
10	Q. And to the best of your knowledge,	10	says N-1 times P-1 and N-2 times P-2 have
11	your team never provided to plaintiff's	11	to be greater than 5?
12	counsel in this case any of the	12	Do you see that?
13	calculations that relate to a bootstrapping	13	A. I see that.
14	test, correct?	14	Q. And N is N is, in your test, is
15	A. Well, I'll take your word for it,	15	4; isn't it?
16	but my understanding is that everything	16	Isn't N-1 the number 4?
17	that was in our files pertaining to this	17	A. No, it's 9.
18	case was produced.	18	Q. It's 9?
19	So it's possible the test was run	19	A. Right.
20	outside the files or on a local computer	20	Q. And what's P-1?
21	instead of the system computer.	21	A. That's 44 percent. The proportion
22	But if you're saying you don't have	22	of the sample that was statistically
23	it, I don't I don't dispute that.	23	significant, that's 44 percent.
24		24	
25	Q. If I don't have it, is it possible	25	Q. And can we agree that 9 times 44
23	that they weren't run prior to the time	23	percent is less than the number 5?
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	A. Yes.	2	A. 1 minus P-1, though, is 1 minus 44
3	Q. And so as you sit here today, you	3	percent.
4	can calculate that your test didn't satisfy	4	Q. Bear with me.
5	the second criteria either, correct?	5	So we agree the next number after
6	A. Yes.	6	the number 5 is the number 6?
7	Q. Now, the third criteria is going to	7	A. Yes.
8	strain my arithmetic abilities, but maybe	8	Q. And 6/9 is two-thirds, which is 66
9	not yours.	9	percent, right?
10	This says N-1 times 1 minus P-1.	10	A. Yes.
11	Do you see that?	11	Q. So if you multiplied 9 by 66
12	A. So that would be 56 percent. 1	12	percent, you would get 6, right, or 67
13	minus 44 is 56.	13	percent, right?
14	Q. And is	14	A. Yes.
15	A. That might be more than 5. I would	15	Q. Well, here we're multiplying 9 by 56
16	have to run it through a calculator.	16	percent, right?
17	Q. You believe it's 9 times 56 percent?	17	A. Yeah.
18	A. Yes.	18	Q. It's less than 6, right?
19	Q. Isn't isn't a number greater than	19	MR. MARKOVITS: Objection.
20	5 the next number that's greater than 5	20	More than 5.
21	the number 6?	21	A. Oh, I see. It might be greater than
22	We can agree that a number greater	22	5. I just can we check it?
23	than 5 is the number 6?	23	BY MR. FRANK:
24	A. Yes.	24	Q. Well, this all assumes that you're
	Q. And so	25	right and that N-1 is 9, correct? Is it
25	O. Aliu 80	1 4 5	fight and that N-1 is 9. confect: is it

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	possible	2	A. I'm familiar with your argument.
3	A. It is 9.	3	I don't agree with it, but I'm
4	Q. Are you sure?	4	familiar with it. It's been raised before
5	A. Either N-1 or N-2. I mean, it	5	and I've addressed it before.
6	depends how you define which one you	6	Q. When you say you're familiar with my
7	assign to N-1 and which one you assign to	7	argument, what you mean is that you're
8	N-2 is arbitrary.	8	familiar with the notion that economists,
9	Q. And in your report, when you discuss	9	when they conduct z-tests shouldn't be
10	these numbers, you don't simply discuss	10	using the last day of a class period?
11	four results out of nine; you discuss three	11	A. No. I'm familiar with the
12	results out of the eight as well, don't	12	fallacious argument that selection of what
13	you?	13	happens to be the final corrective
14	A. Yes.	14	disclosure of a class period of a
15	Q. You consider what your z-test would	15	proposed class period could be considered
16	look like if you excluded the November 20	16	selection bias.
17	date, right?	17	And as it's a fallacious argument
18	A. Yes.	18	because taking into account the nature of
19	Q. Why did you do that?	19	the information that emerged on that day,
20	A. To show that if you if someone	20	the nature of the information that
21	were to make an issue of the inclusion of	21	transpired on that day, it's indisputable
22	that last date, that the result is robust.	22	that it's not simply a spurious result,
23	Q. Why did you think that someone might	23	it's not an arbitrarily selected result,
24	make an issue about the inclusion of that	24	it's not a selection based on a
25	last date?	25	reverse-event study where you firsts look
			, ,
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	rage 220		Page 221
1		1	
1 2	Steven P, Feinstein, Ph.D at the results and then choose that date	1 2	Steven P, Feinstein, Ph.D is defined.
	Steven P, Feinstein, Ph.D at the results and then choose that date		Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D at the results and then choose that date because you know it's statistically	2	Steven P, Feinstein, Ph.D is defined. This is not selection bias. And the
2 3	Steven P, Feinstein, Ph.D at the results and then choose that date	2 3 4	Steven P, Feinstein, Ph.D is defined. This is not selection bias. And the concept of a reverse-event study and
2 3 4	Steven P, Feinstein, Ph.D at the results and then choose that date because you know it's statistically significant rather than you chose that date	2	Steven P, Feinstein, Ph.D is defined. This is not selection bias. And the
2 3 4 5	Steven P, Feinstein, Ph.D at the results and then choose that date because you know it's statistically significant rather than you chose that date because the information flow that date was	2 3 4 5	Steven P, Feinstein, Ph.D is defined. This is not selection bias. And the concept of a reverse-event study and peek-ahead bias as it's sometimes called,
2 3 4 5 6	Steven P, Feinstein, Ph.D at the results and then choose that date because you know it's statistically significant rather than you chose that date because the information flow that date was substantial.	2 3 4 5 6	Steven P, Feinstein, Ph.D is defined. This is not selection bias. And the concept of a reverse-event study and peek-ahead bias as it's sometimes called, is described in the literature. This
2 3 4 5 6 7	Steven P, Feinstein, Ph.D at the results and then choose that date because you know it's statistically significant rather than you chose that date because the information flow that date was substantial. If there was some question	2 3 4 5 6 7	Steven P, Feinstein, Ph.D is defined. This is not selection bias. And the concept of a reverse-event study and peek-ahead bias as it's sometimes called, is described in the literature. This choice of this date because of the
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Steven P, Feinstein, Ph.D at the results and then choose that date because you know it's statistically significant rather than you chose that date because the information flow that date was substantial. If there was some question whatsoever about whether or not the information flow that day was substantial, then I could buy into your argument. But there is absolutely no question that the information flow that day was remarkable and unusual, meriting that date's inclusion in these event studies. Q. Are you aware of any academic literature that supports your view that z-tests, as applied to securities class actions, properly include the last day of the class period? A. The principles that this decision was based on is in the literature, statistical literature as well as econometric literature, that what may appear to be that there is something	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Steven P, Feinstein, Ph.D is defined. This is not selection bias. And the concept of a reverse-event study and peek-ahead bias as it's sometimes called, is described in the literature. This choice of this date because of the information that came out that day does not is not peek-ahead bias or selection bias. Q. Well A. So, I mean, the literature explains what the error is and what the error would be if someone picked that date inappropriately. So it's clear in the literature. The literature makes it very clear what the error would be. And the information we have about that date makes it clear that what I did is not that error. Q. What is peek-ahead bias? A. Well, you pick the events because you know they were significant. Now, you might pick the same events.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D at the results and then choose that date because you know it's statistically significant rather than you chose that date because the information flow that date was substantial. If there was some question whatsoever about whether or not the information flow that day was substantial, then I could buy into your argument. But there is absolutely no question that the information flow that day was remarkable and unusual, meriting that date's inclusion in these event studies. Q. Are you aware of any academic literature that supports your view that z-tests, as applied to securities class actions, properly include the last day of the class period? A. The principles that this decision was based on is in the literature, statistical literature as well as econometric literature, that what may	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D is defined. This is not selection bias. And the concept of a reverse-event study and peek-ahead bias as it's sometimes called, is described in the literature. This choice of this date because of the information that came out that day does not is not peek-ahead bias or selection bias. Q. Well A. So, I mean, the literature explains what the error is and what the error would be if someone picked that date inappropriately. So it's clear in the literature. The literature makes it very clear what the error would be. And the information we have about that date makes it clear that what I did is not that error. Q. What is peek-ahead bias? A. Well, you pick the events because you know they were significant.

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1 Steven P, Feinstein, Ph.D	1 Steven P, Feinstein, Ph.D
2 significant, but if you pick them	2 But four out of nine is a legitimate
3 specifically because there's it's	result, because this is not peek-ahead
4 indisputable that there was high	4 bias.
5 information flow on those days, making	5 Q. What is selection bias?
6 those days or that day appropriate for an	6 A. The same thing, essentially, that
7 event study, it's not peek-ahead bias.	you that your selection is in some way
8 Q. When you chose November 20, 2007 to	
9 include in your single-event event study,	9 biases the results of the test.
you knew that date was one that would yield	Q. Are you aware of any academic
a statistically significant result,	literature that discusses your approach to
12 correct?	selecting dates in this case for your
A. Right. And I wouldn't have picked	13 z-test?
it except for the fact that also looking at what information came out that day	14 A. Sure. There's an extensive literature. There's an extensive section
what information came out that day identified that day as the most important	
red-letter date in the life of this company	in the chartered financial analyst curriculum on testing and selection bias,
18 over the class period.	18 and it describes what selection bias is and
Q. Weren't you concerned that you would	cautions against it and explains how to not
20 be subject to an accusation that you had	fall into that error, and I followed those
21 peek-ahead bias?	21 protocols.
A. Well, that's the answer to the	Q. And the authority you just
question I gave a few moments ago. That's	23 referenced discusses selecting Wall Street
why I also gave the results for three out	Journal dates and New York Times dates in
of eight.	an effort to select dates for a z-test like
Page 224	Page 225
1 Steven P, Feinstein, Ph.D	1 Steven P, Feinstein, Ph.D
2 this?	2 A. Yes.
this?A. No, it doesn't it describes	A. Yes. Q. Now, do you see where the it says
 this? A. No, it doesn't it describes principles that I applied in order to apply 	2 A. Yes. 3 Q. Now, do you see where the it says 4 "Test statistic value, large samples, Z
 this? A. No, it doesn't it describes principles that I applied in order to apply this rule correctly. 	2 A. Yes. 3 Q. Now, do you see where the it says 4 "Test statistic value, large samples, Z 5 equals," and then a formula?
 this? A. No, it doesn't it describes principles that I applied in order to apply this rule correctly. Q. Now, let me turn your attention to a 	2 A. Yes. 3 Q. Now, do you see where the it says 4 "Test statistic value, large samples, Z 5 equals," and then a formula? 6 A. Right.
 this? A. No, it doesn't it describes principles that I applied in order to apply this rule correctly. Q. Now, let me turn your attention to a document that we're going to mark as 	A. Yes. Q. Now, do you see where the it says "Test statistic value, large samples, Z equals," and then a formula? A. Right. Q. Do you know if that's the formula
this? A. No, it doesn't it describes principles that I applied in order to apply this rule correctly. Q. Now, let me turn your attention to a document that we're going to mark as Exhibit 107.	A. Yes. Q. Now, do you see where the it says "Test statistic value, large samples, Z equals," and then a formula? A. Right. Q. Do you know if that's the formula you used in this case?
this? A. No, it doesn't it describes principles that I applied in order to apply this rule correctly. Q. Now, let me turn your attention to a document that we're going to mark as Exhibit 107.	A. Yes. Q. Now, do you see where the it says "Test statistic value, large samples, Z equals," and then a formula? A. Right. Q. Do you know if that's the formula you used in this case? A. I believe it is, but I did
this? A. No, it doesn't it describes principles that I applied in order to apply this rule correctly. Q. Now, let me turn your attention to a document that we're going to mark as Exhibit 107.	A. Yes. Q. Now, do you see where the it says "Test statistic value, large samples, Z equals," and then a formula? A. Right. Q. Do you know if that's the formula you used in this case? A. I believe it is, but I did
2 this? 3 A. No, it doesn't it describes 4 principles that I applied in order to apply 5 this rule correctly. 6 Q. Now, let me turn your attention to a 7 document that we're going to mark as 8 Exhibit 107. 9 10 (Exhibit No. 107 marked for 11 identification.)	A. Yes. Q. Now, do you see where the it says "Test statistic value, large samples, Z equals," and then a formula? A. Right. Q. Do you know if that's the formula you used in this case? A. I believe it is, but I did bootstrapping to determine that the large sample formula works with our smaller sample as well. I mean, I didn't do it,
2 this? 3 A. No, it doesn't it describes 4 principles that I applied in order to apply 5 this rule correctly. 6 Q. Now, let me turn your attention to a 7 document that we're going to mark as 8 Exhibit 107. 9 10 (Exhibit No. 107 marked for 11 identification.) 12 13 BY MR. FRANK:	A. Yes. Q. Now, do you see where the it says "Test statistic value, large samples, Z equals," and then a formula? A. Right. Q. Do you know if that's the formula you used in this case? A. I believe it is, but I did bootstrapping to determine that the large sample formula works with our smaller sample as well. I mean, I didn't do it, but my team did.
2 this? 3 A. No, it doesn't it describes 4 principles that I applied in order to apply 5 this rule correctly. 6 Q. Now, let me turn your attention to a 7 document that we're going to mark as 8 Exhibit 107. 9 10 (Exhibit No. 107 marked for 11 identification.) 12 13 BY MR. FRANK: 14 Q. Exhibit 107 is a document entitled	A. Yes. Q. Now, do you see where the it says "Test statistic value, large samples, Z equals," and then a formula? A. Right. Q. Do you know if that's the formula you used in this case? A. I believe it is, but I did bootstrapping to determine that the large sample formula works with our smaller sample as well. I mean, I didn't do it, but my team did. Q. I understand that you ran diagnostic
2 this? 3 A. No, it doesn't it describes 4 principles that I applied in order to apply 5 this rule correctly. 6 Q. Now, let me turn your attention to a 7 document that we're going to mark as 8 Exhibit 107. 9 10 (Exhibit No. 107 marked for 11 identification.) 12 13 BY MR. FRANK: 14 Q. Exhibit 107 is a document entitled 15 "Probability and Statistics for Engineering	A. Yes. Q. Now, do you see where the it says "Test statistic value, large samples, Z equals," and then a formula? A. Right. Q. Do you know if that's the formula you used in this case? A. I believe it is, but I did bootstrapping to determine that the large sample formula works with our smaller sample as well. I mean, I didn't do it, but my team did. Q. I understand that you ran diagnostic tests.
2 this? 3 A. No, it doesn't it describes 4 principles that I applied in order to apply 5 this rule correctly. 6 Q. Now, let me turn your attention to a 7 document that we're going to mark as 8 Exhibit 107. 9 10 (Exhibit No. 107 marked for 11 identification.) 12 13 BY MR. FRANK: 14 Q. Exhibit 107 is a document entitled 15 "Probability and Statistics for Engineering 16 and the Sciences," ninth edition, by J.L.	A. Yes. Q. Now, do you see where the it says "Test statistic value, large samples, Z equals," and then a formula? A. Right. Q. Do you know if that's the formula you used in this case? A. I believe it is, but I did bootstrapping to determine that the large sample formula works with our smaller sample as well. I mean, I didn't do it, but my team did. Q. I understand that you ran diagnostic tests. But what I'm curious about is, do
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2 this? 3 A. No, it doesn't it describes 4 principles that I applied in order to apply 5 this rule correctly. 6 Q. Now, let me turn your attention to a 7 document that we're going to mark as 8 Exhibit 107. 9 10 (Exhibit No. 107 marked for 11 identification.) 12 13 BY MR. FRANK: 14 Q. Exhibit 107 is a document entitled 15 "Probability and Statistics for Engineering 16 and the Sciences," ninth edition, by J.L. 17 Devore. 18 Now this is one of the authorities 19 that you cite in Footnote 4 of your	A. Yes. Q. Now, do you see where the it says "Test statistic value, large samples, Z equals," and then a formula? A. Right. Q. Do you know if that's the formula you used in this case? A. I believe it is, but I did bootstrapping to determine that the large sample formula works with our smaller sample as well. I mean, I didn't do it, but my team did. Q. I understand that you ran diagnostic tests. But what I'm curious about is, do you see the sentence at the bottom of the blue box? Do you see that sentence? A. I do.
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2 this? 3 A. No, it doesn't it describes 4 principles that I applied in order to apply 5 this rule correctly. 6 Q. Now, let me turn your attention to a 7 document that we're going to mark as 8 Exhibit 107. 9 10 (Exhibit No. 107 marked for 11 identification.) 12 13 BY MR. FRANK: 14 Q. Exhibit 107 is a document entitled 15 "Probability and Statistics for Engineering 16 and the Sciences," ninth edition, by J.L. 17 Devore. 18 Now this is one of the authorities 19 that you cite in Footnote 4 of your 20 declaration, correct? 21 A. Yes.	2 A. Yes. 3 Q. Now, do you see where the it says 4 "Test statistic value, large samples, Z 5 equals," and then a formula? 6 A. Right. 7 Q. Do you know if that's the formula 8 you used in this case? 9 A. I believe it is, but I did 10 bootstrapping to determine that the large 11 sample formula works with our smaller 12 sample as well. I mean, I didn't do it, 13 but my team did. 14 Q. I understand that you ran diagnostic 15 tests. 16 But what I'm curious about is, do 17 you see the sentence at the bottom of the 18 blue box? Do you see that sentence? 19 A. I do. 20 Q. There it says, "The test can safely 21 be used as long as MP HAT 1, MQ HAT 1, NP
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2 this? 3 A. No, it doesn't it describes 4 principles that I applied in order to apply 5 this rule correctly. 6 Q. Now, let me turn your attention to a 7 document that we're going to mark as 8 Exhibit 107. 9 10 (Exhibit No. 107 marked for 11 identification.) 12 13 BY MR. FRANK: 14 Q. Exhibit 107 is a document entitled 15 "Probability and Statistics for Engineering 16 and the Sciences," ninth edition, by J.L. 17 Devore. 18 Now this is one of the authorities 19 that you cite in Footnote 4 of your 20 declaration, correct? 21 A. Yes. 22 Q. Let me turn your attention to Page 23 393.	Q. Now, do you see where the it says "Test statistic value, large samples, Z equals," and then a formula? A. Right. Q. Do you know if that's the formula you used in this case? A. I believe it is, but I did bootstrapping to determine that the large sample formula works with our smaller sample as well. I mean, I didn't do it, but my team did. Q. I understand that you ran diagnostic tests. But what I'm curious about is, do you see the sentence at the bottom of the blue box? Do you see that sentence? A. I do. Q. There it says, "The test can safely be used as long as MP HAT 1, MQ HAT 1, NP HAT 2, and NQ HAT 2 are all at least ten."

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	Page 226		Page 227
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	A. It's a different set of criteria	2	authorities that support your view that
3	than was in the prior article, which shows	3	these conditions do not need to be met if
4	you that there's I wouldn't call it	4	you were able to satisfy the diagnostic
5	disagreement among statisticians, but	5	test that you referenced?
6	there's an understanding that that	6	A. Yes. Not as I sit here now, but
7	diagnostic evaluation on a case-by-case	7	yes, I can.
8	basis is called for.	8	Q. Are they referenced are they
9	Q. Well, are you aware of any academic	9	referenced anywhere in your report?
10	authority that supports the view that one	10	A. No. They generally don't have to
11	can properly run a z-test where the	11	be. Usually people understand the
12	conditions set forth in either Exhibit	12	principles and are satisfied with the
13	106 or 107 are not met?	13	principles well enough to know that it's
14	A. Yes.	14	not going to make a difference if the
15	Q. What's that?	15	diagnostic test passed.
16	A. Well, there's procedures for that.	16	Q. Now, for your z-test, you didn't
17	There's a bootstrapping to test to	17	just choose a single date, correct?
18	see if the critical values hold and that	18	A. Correct. I mean, it's the nature of
19	the critical values are valid in a small	19	a z-test, you compare two samples And it's
20	sample environment as well as a large	20	samples that are more each greater than
21	sample environment as wen as a large sample environment.	21	1.
22	Q. Well	22	Q. Now, in constructing a z-test, I
23	A. That's how we always conduct the	23	believe you testified, and it's in your
24	test.	24	report, that it's important to choose dates
25	Q. Can you point me to any academic	25	on which there's greater information flow,
23	Q. Can you point me to any academic	25	on which there's greater information now,
	Page 228		Page 229
	Page 228		Page 229
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D correct?	2	Steven P, Feinstein, Ph.D what its program was for shoring up certain
2 3	Steven P, Feinstein, Ph.D correct? A. Right.	2 3	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages.
2 3 4	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are	2 3 4	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I
2 3 4 5	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall	2 3 4 5	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have
2 3 4 5 6	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times	2 3 4 5 6	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the
2 3 4 5 6 7	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right?	2 3 4 5 6 7	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall	2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting
2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself.
2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed
2 3 4 5 6 7 8 9 10 11	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date	2 3 4 5 6 7 8 9 10	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of
2 3 4 5 6 7 8 9 10 11	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return.	2 3 4 5 6 7 8 9 10 11	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event.
2 3 4 5 6 7 8 9 10 11 12 13	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York	2 3 4 5 6 7 8 9 10 11 12 13	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I
2 3 4 5 6 7 8 9 10 11 12 13 14	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York Times came out with an article and said	2 3 4 5 6 7 8 9 10 11 12 13	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I gave you a bit of a hypothetical and you
2 3 4 5 6 7 8 9 10 11 12 13 14 15	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York Times came out with an article and said that Freddie Mac was going to be reporting	2 3 4 5 6 7 8 9 10 11 12 13 14 15	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I gave you a bit of a hypothetical and you jumped to a particular example.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York Times came out with an article and said that Freddie Mac was going to be reporting something tomorrow	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I gave you a bit of a hypothetical and you jumped to a particular example. So if you turn to Exhibit 5 of your
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York Times came out with an article and said that Freddie Mac was going to be reporting something tomorrow A. Yes.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I gave you a bit of a hypothetical and you jumped to a particular example. So if you turn to Exhibit 5 of your report, which I hope is Exhibit 96, if I'm
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York Times came out with an article and said that Freddie Mac was going to be reporting something tomorrow A. Yes. Q and then The Wall Street Journal	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I gave you a bit of a hypothetical and you jumped to a particular example. So if you turn to Exhibit 5 of your report, which I hope is Exhibit 96, if I'm doing this right.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York Times came out with an article and said that Freddie Mac was going to be reporting something tomorrow A. Yes. Q and then The Wall Street Journal came out with an article two days later	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I gave you a bit of a hypothetical and you jumped to a particular example. So if you turn to Exhibit 5 of your report, which I hope is Exhibit 96, if I'm doing this right. Doctor, is it Exhibit 96?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York Times came out with an article and said that Freddie Mac was going to be reporting something tomorrow A. Yes. Q and then The Wall Street Journal came out with an article two days later saying Freddie Mac reported something	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I gave you a bit of a hypothetical and you jumped to a particular example. So if you turn to Exhibit 5 of your report, which I hope is Exhibit 96, if I'm doing this right. Doctor, is it Exhibit 96? MR. MARKOVITS: I think it's
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York Times came out with an article and said that Freddie Mac was going to be reporting something tomorrow A. Yes. Q and then The Wall Street Journal came out with an article two days later saying Freddie Mac reported something yesterday, in that example, you chose the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I gave you a bit of a hypothetical and you jumped to a particular example. So if you turn to Exhibit 5 of your report, which I hope is Exhibit 96, if I'm doing this right. Doctor, is it Exhibit 96?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York Times came out with an article and said that Freddie Mac was going to be reporting something tomorrow A. Yes. Q and then The Wall Street Journal came out with an article two days later saying Freddie Mac reported something yesterday, in that example, you chose the date in between?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I gave you a bit of a hypothetical and you jumped to a particular example. So if you turn to Exhibit 5 of your report, which I hope is Exhibit 96, if I'm doing this right. Doctor, is it Exhibit 96? MR. MARKOVITS: I think it's Exhibit 96, even if you're not doing it right.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York Times came out with an article and said that Freddie Mac was going to be reporting something tomorrow A. Yes. Q and then The Wall Street Journal came out with an article two days later saying Freddie Mac reported something yesterday, in that example, you chose the date in between? A. Well, I chose the date that the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I gave you a bit of a hypothetical and you jumped to a particular example. So if you turn to Exhibit 5 of your report, which I hope is Exhibit 96, if I'm doing this right. Doctor, is it Exhibit 96? MR. MARKOVITS: I think it's Exhibit 96, even if you're not doing it right. A. Yes.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D correct? A. Right. Q. Now, the dates that you chose are not actually the dates on which The Wall Street Journal or the New York Times published an article, right? A. That's right. They are the Wall Street Journal and the New York Times were used to identify the date of the event, and then the date of the event is the date that's tested for the return. Q. So, for example, if the New York Times came out with an article and said that Freddie Mac was going to be reporting something tomorrow A. Yes. Q and then The Wall Street Journal came out with an article two days later saying Freddie Mac reported something yesterday, in that example, you chose the date in between? A. Well, I chose the date that the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D what its program was for shoring up certain borrowers' mortgages. So, I mean, the earlier date I mean, there was actually I could have put in the exhibit in the report the follow-up article from the New York Times or from the Wall Street Journal reporting on the testimony itself. I mean, it would have still pointed to the day of the testimony as the day of the event. Q. Well, let's be specific, because I gave you a bit of a hypothetical and you jumped to a particular example. So if you turn to Exhibit 5 of your report, which I hope is Exhibit 96, if I'm doing this right. Doctor, is it Exhibit 96? MR. MARKOVITS: I think it's Exhibit 96, even if you're not doing it right. A. Yes.

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	BY MR. FRANK:	2	Q. But you chose the prior date because
3	Q. So are you looking at Exhibit 5 in	3	they were discussing an event from the
4	deposition Exhibit 96?	4	prior date, right?
5	A. Yes.	5	A. Right. And it was covered in other
6	Q. Okay. And this exhibit sets forth	6	wire sources on February 27th. So the
7	the dates you selected for your z-test,	7	market knew about it on February 27th.
8	correct?	8	Q. So is it fair to say that you didn't
9	A. That's right.	9	use your selection criteria to identify
10	Q. And we see in the first line, for	10	dates where there was more there were
11	example, the first row, under New York	11	more news articles or greater information
12	Times, it says "Freddie Mac Tightens	12	flow, but rather, you used your selection
13	Standards," by Vikas Bajaj, 28 February	13	criteria to identify dates where material
14	2007, correct?	14	company information was disclosed?
15	A. Yes.	15	A. Yes, I think that's fair.
16	Q. And then under The Wall Street	16	
17	Journal it says, "Freddie Mac Won't Buy	17	Q. You weren't looking for
18	Some Subprime Loans," by James Hagerty and	18	A. Oh, no, no, no, no, not just
19	Damian Paletta, 28 February 2007, right?	19	I mean, I'm looking for dates that The Wall Street Journal and the New York Times
20	A. Right. And they both refer to	20	collectively or together each determined
21	•	21	something important had happened for
22	announcements that came out the previous	22	Freddie Mac, which necessarily is going to
23	day. Q. Both of those articles were	23	be an information flow date.
24	published on February 28, 2007, right?	24	Q. Well
25		25	`
23	A. Right.	23	A. I mean, information about the
	Page 232		Page 233
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	important event.		
		1 2	
3		2 3	criteria other than the Wall Street
3 4	Q. You weren't choosing the day that	3	criteria other than the Wall Street Journal, New York Times approach you
3 4	Q. You weren't choosing the day that the newspapers published their articles,	3 4	criteria other than the Wall Street Journal, New York Times approach you described in your report?
3	Q. You weren't choosing the day that the newspapers published their articles, right?	3	criteria other than the Wall Street Journal, New York Times approach you described in your report? A. Yeah. I sat with my team for a good
3 4 5	Q. You weren't choosing the day that the newspapers published their articles, right? A. I picked the event the date of	3 4 5	criteria other than the Wall Street Journal, New York Times approach you described in your report? A. Yeah. I sat with my team for a good long time thinking about what would be the
3 4 5 6	Q. You weren't choosing the day that the newspapers published their articles, right?	3 4 5 6	criteria other than the Wall Street Journal, New York Times approach you described in your report? A. Yeah. I sat with my team for a good long time thinking about what would be the most reasonable event selection algorithm.
3 4 5 6 7	Q. You weren't choosing the day that the newspapers published their articles, right? A. I picked the event the date of the events that the newspaper articles was about.	3 4 5 6 7	criteria other than the Wall Street Journal, New York Times approach you described in your report? A. Yeah. I sat with my team for a good long time thinking about what would be the most reasonable event selection algorithm. Q. What were the other algorithms you
3 4 5 6 7 8	Q. You weren't choosing the day that the newspapers published their articles, right? A. I picked the event the date of the events that the newspaper articles was	3 4 5 6 7 8	criteria other than the Wall Street Journal, New York Times approach you described in your report? A. Yeah. I sat with my team for a good long time thinking about what would be the most reasonable event selection algorithm.
3 4 5 6 7 8 9	Q. You weren't choosing the day that the newspapers published their articles, right? A. I picked the event the date of the events that the newspaper articles was about. Q. And did you look at the dates that	3 4 5 6 7 8 9	criteria other than the Wall Street Journal, New York Times approach you described in your report? A. Yeah. I sat with my team for a good long time thinking about what would be the most reasonable event selection algorithm. Q. What were the other algorithms you discussed with your team?
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3 4 5 6 7 8 9 10 11	Q. You weren't choosing the day that the newspapers published their articles, right? A. I picked the event the date of the events that the newspaper articles was about. Q. And did you look at the dates that the newspaper articles actually came out? A. Yes. Q. And what did you determine upon	3 4 5 6 7 8 9 10 11	criteria other than the Wall Street Journal, New York Times approach you described in your report? A. Yeah. I sat with my team for a good long time thinking about what would be the most reasonable event selection algorithm. Q. What were the other algorithms you discussed with your team? A. Well, we considered using dates on which any news article was written, for example, but rejected that possibility
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3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. You weren't choosing the day that the newspapers published their articles, right? A. I picked the event the date of the events that the newspaper articles was about. Q. And did you look at the dates that the newspaper articles actually came out? A. Yes. Q. And what did you determine upon looking at those dates? A. Well, I would check to see if I used other sources to see if the event occurred on the 28th or the 27th. Or I also looked to see if the article was published, if it's, like, the Wall Street Journal wire edition and it's after the close, then the effective event date would be the next day.	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	criteria other than the Wall Street Journal, New York Times approach you described in your report? A. Yeah. I sat with my team for a good long time thinking about what would be the most reasonable event selection algorithm. Q. What were the other algorithms you discussed with your team? A. Well, we considered using dates on which any news article was written, for example, but rejected that possibility because that would have, essentially, picked every day. So it had to be more important news sources. Q. Did you consider any other algorithms? A. I'm sure we did, but didn't test any others. We decided on this one before running a test.
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Q. You weren't choosing the day that the newspapers published their articles, right? A. I picked the event the date of the events that the newspaper articles was about. Q. And did you look at the dates that the newspaper articles actually came out? A. Yes. Q. And what did you determine upon looking at those dates? A. Well, I would check to see if I used other sources to see if the event occurred on the 28th or the 27th. Or I also looked to see if the article was published, if it's, like, the Wall Street Journal wire edition and it's after the close, then the effective event date would be the next day. Q. Did you apply any economic test to	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	criteria other than the Wall Street Journal, New York Times approach you described in your report? A. Yeah. I sat with my team for a good long time thinking about what would be the most reasonable event selection algorithm. Q. What were the other algorithms you discussed with your team? A. Well, we considered using dates on which any news article was written, for example, but rejected that possibility because that would have, essentially, picked every day. So it had to be more important news sources. Q. Did you consider any other algorithms? A. I'm sure we did, but didn't test any others. We decided on this one before running a test. Q. As you sit here today, can you
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Q. You weren't choosing the day that the newspapers published their articles, right? A. I picked the event the date of the events that the newspaper articles was about. Q. And did you look at the dates that the newspaper articles actually came out? A. Yes. Q. And what did you determine upon looking at those dates? A. Well, I would check to see if I used other sources to see if the event occurred on the 28th or the 27th. Or I also looked to see if the article was published, if it's, like, the Wall Street Journal wire edition and it's after the close, then the effective event date would be the next day. Q. Did you apply any economic test to those other dates?	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	criteria other than the Wall Street Journal, New York Times approach you described in your report? A. Yeah. I sat with my team for a good long time thinking about what would be the most reasonable event selection algorithm. Q. What were the other algorithms you discussed with your team? A. Well, we considered using dates on which any news article was written, for example, but rejected that possibility because that would have, essentially, picked every day. So it had to be more important news sources. Q. Did you consider any other algorithms? A. I'm sure we did, but didn't test any others. We decided on this one before running a test. Q. As you sit here today, can you recall any other algorithms you considered?

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Q. That's why I used the word "other."	2	New York Times thought that what Freddie
3	A. Other than that. Yeah. I remember	3	Mac said about earnings on an earnings
4	saying, hey, why don't we use the 8-Ks, and	4	announcement date was not consequential
5	then my team reminded me that there are no	5	enough to report, we basically agreed with
6	8-Ks for this company. So that didn't	6	the New York Times and the Wall Street
7	work.	7	Journal and felt it was an inappropriate
8	We thought about earnings	8	date.
9	announcements, but the problem there was,	9	Q. Well, your methodology was that they
10	like, I said it's already that path has	10	both had to conclude it was significant
11	already been tread upon.	11	enough to report on
12	No. We thought I mean, we	12	A. That's right.
13	brainstormed for a while, and this is what	13	Q and they also had to write upon
14	made the most sense.	14	it within a particular period of time; is
15 16	And I still believe this is the best	15 16	that right?
17	algorithm for selecting dates. And if you think there's some other dates that ought	17	A. Well, yes.
18	to be tested, let me know and we'll look at	18	Q. Now, since you drafted this report, have you applied this date selection
19	them together.	19	methodology in any other case?
20	Q. You didn't test the earnings	20	A. Not exactly this methodology, no.
21	announcement dates, right?	21	Q. And since you finalized and signed
22	A. Well, only the earnings announcement	22	this report, you have authored other expert
23	dates that were selected by this	23	reports on market efficiency, correct?
24	methodology. Three of them were.	24	A. Yes.
25	If the Wall Street Journal and the	25	Q. Did you identify all of those
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1			
	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	earlier in your deposition?	2	cases; is that fair to say?
2	earlier in your deposition? A. Yes, yes.	2 3	cases; is that fair to say? A. Yes.
2 3 4	earlier in your deposition? A. Yes, yes. Q. So	2 3 4	cases; is that fair to say? A. Yes. Q. It seems likely that there are other
2 3 4 5	earlier in your deposition? A. Yes, yes. Q. So A. No. I mean, in this deposition, I	2 3 4 5	cases; is that fair to say? A. Yes. Q. It seems likely that there are other reports, but you just can't recall whether
2 3 4 5 6	earlier in your deposition? A. Yes, yes. Q. So A. No. I mean, in this deposition, I identified testimonies for you. I did not	2 3 4 5 6	cases; is that fair to say? A. Yes. Q. It seems likely that there are other reports, but you just can't recall whether and how many?
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	earlier in your deposition? A. Yes, yes. Q. So A. No. I mean, in this deposition, I identified testimonies for you. I did not seek to I don't recall if something was submitted where I have not yet been deposed. Q. Well, thank you for that clarification. Maybe we'll just see if we can make it clear. In Exhibit 96, we see on the front page of your report that it's dated June 7, 2017, correct? A. Yes. Q. And now some time has passed since June 7, correct? A. Right. Q. And have you finalized any reports on market efficiency since June 7 of 2017? A. I would have to check my records.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	cases; is that fair to say? A. Yes. Q. It seems likely that there are other reports, but you just can't recall whether and how many? A. I wouldn't say it's necessarily likely, but I just can't recall whether and how many. Q. Now, you mentioned earlier that you looked at Factiva. Do you recall that? A. Yes. Q. What's Factiva? A. It's a news reporting service, from which I can download news articles. Q. And did you make any effort to identify what news sources were reporting most frequently on Freddie Mac? A. No. Q. So, for example, if a newspaper like the Financial Times or the Washington Post report far more frequently on Freddie Mac
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	earlier in your deposition? A. Yes, yes. Q. So A. No. I mean, in this deposition, I identified testimonies for you. I did not seek to I don't recall if something was submitted where I have not yet been deposed. Q. Well, thank you for that clarification. Maybe we'll just see if we can make it clear. In Exhibit 96, we see on the front page of your report that it's dated June 7, 2017, correct? A. Yes. Q. And now some time has passed since June 7, correct? A. Right. Q. And have you finalized any reports on market efficiency since June 7 of 2017? A. I would have to check my records.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	cases; is that fair to say? A. Yes. Q. It seems likely that there are other reports, but you just can't recall whether and how many? A. I wouldn't say it's necessarily likely, but I just can't recall whether and how many. Q. Now, you mentioned earlier that you looked at Factiva. Do you recall that? A. Yes. Q. What's Factiva? A. It's a news reporting service, from which I can download news articles. Q. And did you make any effort to identify what news sources were reporting most frequently on Freddie Mac? A. No. Q. So, for example, if a newspaper like the Financial Times or the Washington Post report far more frequently on Freddie Mac

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	A. Essentially, correct.	2	A. Well, I read them. They're I
3	Q. Now in the Petrobras matter, you did	3	don't recall that that's how they used
4	an FDT z-test, correct?	4	them.
5	A. Yes.	5	(Witness reviews document.)
6	Q. You didn't use this news selection	6	Q. What are you looking at
7	approach there, right?	7	A. I'm looking at
8	A. Correct. They had 6-Ks.	8	Q Dr. Feinstein?
9	Q. Well they don't have 8-Ks, right?	9	A the filings that I have on
10	A. Right, but they have 6-Ks. Freddie	10	Page 51.
11	Mac has neither.	11	Yes, to some extent, but they're not
12	Q. Well, Freddie Mac 6-Ks are the	12	subject to the same rules as an 8-K. I
13	form in which a foreign company updates the	13	understood that there were press releases
14	market in an equivalent way as an 8-K	14	from Freddie Mac from time to time.
15	right?	15	Q. Now, you also did an FDT z-test in
16	A. Yes.	16	Eletrobras?
17	Q. What is an information statement	17	A. Yes.
18	supplement? Do you know?	18	Q. And you didn't use this Wall Street
19	A. Well, my understanding is that was,	19	Journal and New York Times selection method
20	essentially, their financial reporting,	20	in that case either, right?
21	financial results.	21	A. That's right.
22	Q. Are you aware of whether or not	22	Q. And as you sit here today, can you
23	Freddie Mac also used supplements to	23	think of any case where you used that
24	information statements as a surrogate for	24	you're certain that you used the FDT z-test
25	Forms 8-K?	25	other than this case, Eletrobras, and
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Petrobras?	2	the test. It's called a Chow test. And in
3	A. Not without checking my records.	3	fact, it identified that the price dynamics
4	Q. Now, to conduct an event study	4	were different.
5	strike that.	5	So that's why I ran two separate
6	To conduct a z-test after you select	6	one way to accommodate analysis when
7	dates, you have to create a market model;	7	there's a structural break is to divide the
8	isn't that correct?	8	data up according to the two regimes and
9	A. Correct.	9	run a regression on each separate piece.
10	Q. And was your market model for your	10	Q. What is a structural break?
11	z-test the same as your market model for	11	A. Its means that the price dynamics
12	your single-event event study?	12	are different before than they were after
13	A. Yes.	13	that point in time.
14	Q. Now, in your market model, you used	14	Q. What are price dynamics?
15	two estimation periods, correct?	15	A. What drives the what drives the
16	A. Yes.	16	stock price, with respect to a market
17	Q. Why do you do that?	17	factor, a peer group factor, and the random
18	A. Well, one thing that I gleaned from	18	volatility factor.
19	the Bajaj report was a suspicion that there	19	Q. Now, you identified a structural
20	was a structural break around August of	20	break after reviewing the Bajaj report,
21	2007, that the price dynamics before August	21	correct?
22	of or August 8th, I believe it was,	22	A. Right.
23	before August 8, 2007 were different than	23	Q. Did you do any independent testing
24	the price dynamics afterwards.	24	of your own to identify any other
25	So there's a test for that. I ran	25	structural breaks in the market?

Page 242 Page 243 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 1 2 2 A. No. He had reasons for placing it to place the break; but it also might not. 3 3 at August 8th. And rather than grope I don't think any kind of changed 4 around, I accepted his reasons and ran the 4 econometrics is going to change the 5 5 test on the date that he stated was the conclusion that November 20th was a date 6 6 that the market reacted to the structural break date. 7 7 O. And your test confirmed that he was information -- to Freddie Mac's specific 8 8 correct? information. It's just too strong a 9 9 A. Yes. result. 10 10 Q. Is it possible that there were other And the -- I would say it's structural breaks during the class period 11 unlikely. Leave it at that. I would say 11 12 in this case? 12 it's -- anything's possible but it's 13 13 A. Well, it's possible but unlikely. I unlikely. 14 mean, there was a -- there was a 14 Q. And was the structural break in August due to a liquidity crisis? 15 fundamental market-based reason for stating 15 16 that there was one on August 8th, and I 16 A. Well, a systemic -- a systemic 17 didn't see that kind of compelling argument 17 market liquidity crisis or a systemic 18 18 market dislocation is, I believe, how other for any other date. 19 Q. If there are other structural breaks 19 people have characterized it. 20 in the class period, might that affect the 20 Q. Well, based on the results of your 21 conclusions that you reached in your 21 model, would you agree that the stock 22 22 market was more volatile following the report? 23 23 A. It could conceivably, if in fact the systemic market liquidity crisis in August? 24 dynamics did change significantly and that 24 A. Yes. 25 August 8th isn't the most appropriate place 25 O. What is a Chow test? Page 244 Page 245 1 1 Steven P, Feinstein, Ph.D. Steven P, Feinstein, Ph.D 2 A. A Chow test is a test to see if the 2 level has changed. 3 dynamics have changed at a potential break 3 Q. And did you do anything to determine 4 4 which it was? 5 Q. And you conducted it because of what 5 A. Yes. Q. What did you do? 6 6 you had reviewed in Dr. Bajaj's report? 7 A. Yes. 7 A. Ran the two regressions. You see 8 8 O. He had identified a structural them juxtaposed on Exhibit 7. Q. And what do those reveal? 9 break, and you wanted to confirm that or 9 A. Well, the volatility is certainly 10 refute it, correct? 10 11 A. Exactly. 11 greater after August 8, 2007 than it was 12 Q. And did you do a Chow test for the 12 before. You see that in the standard error entirety of the class period or just for 13 13 level. that one date? 14 14 Q. What about the relationship between 15 15 A. That date. Freddie Mac's stock and the broader market? 16 Q. Is it fair to say that the evidence 16 A. I don't see -- just eyeballing these 17 numbers, I don't see a significant 17 of a structural break in the market means that the relationship between Freddie Mac's 18 difference in the peer index. I see a 18 19 stock and the broader market changed during 19 difference in the value. But looking at 20 20 the class period -- the proposed class the standard error of the coefficient, it 21 period? 21 doesn't appear to be a statistically 22 22 significant difference in the peer index A. It can mean that. It could also 23 mean that the background volatility has 23 coefficient and, really, the same -- I 24 changed. It could either be that the 24 mean, I'm eyeballing it. I'm not running 25 25 the formal test. coefficients have changed or the volatility

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	But I don't I see different	2	Q. And if you look at the second
3	values for the peer index and the market	3	estimation period, the standard error is
4	index coefficient. But comparing those to	4	1.66 percent, correct?
5	the starred error of the coefficients, it's	5	A. That's right.
6	not clear that they're significant.	6	Q. And how do you interpret those two
7		7	statistics?
8	Q. Now, you just turned to Exhibit 7 in	8	A. Well, it means there's much more
9	your report, correct?	9	
10	A. That's right.	10	background noise subsequent to
	Q. Now, if you look at the the top	11	August 9, 2007.
11	of the page is the first estimation period		Q. Would you agree that the volatility
12	and the bottom is the second estimation	12	of the residual returns in the second
13	period, correct?	13	period is more than twice that of the first
14	A. Yes.	14	period?
15	Q. You have two estimation periods in	15	A. Yes.
16	your regression model, right?	16	Q. What do you think caused this
17	A. Yes.	17	increased volatility in the residual
18	Q. And if you look at the first	18	returns?
19	estimation period, what is the standard	19	A. I didn't do a lot of analysis on
20	error?	20	that. I just accepted it for what it was.
21	A. 0.77 percent.	21	It's possibly that just the
22	Q. And where and that is in the very	22	volatility in the input data, such that we
23	first panel next to standard error,	23	see volatility in the unexplained part of
24	right?	24	the regression output.
25	A. Yes.	25	Q. Now, the first and second estimation
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	periods have coefficients for market index	2	more with the peer index, more closely with
3	of negative .081 and .328, respectively.	3	a higher correlation with the peer index,
4	How do you interpret those results?	4	other financials, than it was with the
5	A. I'm sorry, which two?	5	overall stock market. And that it probably
6	Q. So if you look at market index.	6	did have a correlation with the market
7	A. Yes.	7	index, but that was being proxied for by
8	Q. You'll see under coefficient, it	8	the peer index sufficiently that the market
9	says negative .081?	9	index relationship looked weak.
10	A. Right.	10	Q. When you testified that the numbers
11	Q. And then if you look at the second	11	weren't statistically significant, what
12	estimation period, next to market index,	12	were you looking at to determine that?
13	you see a coefficient of positive .328?	13	A. On the very right-hand column, the
14	A. Right. Neither of those are	14	"T" statistics, the letter "T" they're
15	statistically significant, which means that	15	not they're nowhere close to 2.
16	the significant relationship is between	16	For the early subperiod, it's
17	Freddie Mac and its peer index. That's	17	negative 0.5, and for the later subperiod,
18	swamping any relationship that there may be	18	it's 0.9.
19	between the market index and Freddie Mac.	19	Q. When you use the number 2, is that
20	Q. And so what is what does that	20	because a statistically significant result
21	mean for your layperson?	21	would be greater than 1.96?
22	A. I don't know what you mean by the	22	A. A statistically significant
23	question.	23	relationship between an explanatory
24	What it means is that what the data	24	variable and Freddie Mac stock returns
25	indicate is that Freddie Mac was moving	25	would be borne out or indicated by a "T"

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	statistic greater than roughly or	2	A. It didn't. That's my explanation.
3	roughly in the neighborhood of 2, greater	3	It didn't. This is a nonsignificant
4	than 1.96.	4	result.
5	Q. Is it fair to say that Freddie Mac's	5	Q. So the fact that it's negative
6	stock is more sensitive to changes in the	6	doesn't matter to you because of its
7	market during the second period after	7	statistical insignificance?
8	August 9, 2007?	8	A. Right. The regression indicates
9	A. No, I don't I don't think you can	9	that it's not deterministically or
10	drew that. I wouldn't draw that	10	definitively positively or negatively
11	conclusion.	11	correlated with the market in the first
12	Q. Does the negative coefficient in the	12	period, in a regression where the peer
13	first period strike you as unusual?	13	index also appears.
14	A. No, because of its it's not	14	Q. Now, turning to the intercept
15	statistically significant, and there's a	15	figures.
16	positive relationship a significant	16	A. Yes.
17	positive relationship with the peer index,	17	Q. I see that the first and second
18	and the peer index is somewhat is a	18	estimation periods have coefficients for
19	correlation with the market index. So it	19	intercept of .02 percent and negative 3.4
20	could be picking up its market effect	20	percent, respectively.
21	through the peer effect.	21	A. Yes.
22	Q. Can you provide an economic	22	Q. Do you see that?
23	explanation for why your model says Freddie	23	A. Yes.
24	Mac's stock moved opposite to the market in	24	Q. How do you interpret those
25	the first period?	25	statistics?
	the first period.		sunsites.
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	rage 232		Page 253
1		1	
1 2	Steven P, Feinstein, Ph.D	1 2	Steven P, Feinstein, Ph.D a standard error?
			Steven P, Feinstein, Ph.D a standard error?
2	Steven P, Feinstein, Ph.D A. The same way. I mean, this is	2	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D A. The same way. I mean, this is we're working with real data, and real data	2	Steven P, Feinstein, Ph.D a standard error? A. I I'm not prepared to answer that
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D A. The same way. I mean, this is we're working with real data, and real data has a random component to it, as well as noise and measurement data. And real data's sometimes messy. I mean, what we're trying that's why we run regressions, to try to ferret out signal from noise. The noise in the data is such that these are the values, but neither are statistically significant. Q. Does this negative intercept in the second period strike you as unusual? A. A little bit unusual, but not terribly unusual. It means that the data were such that the stock seemed to trend down. But again, it's not a statistically significant result at the 95 percent two-tailed confidence level. Q. Are you familiar with pooling versus unpooling standard errors?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D a standard error? A. I I'm not prepared to answer that question today. I mean, like I said, this is something that I've studied, reviewed, learned, been tested on, but not recently. Q. Well, in terms of conducting the calculation that underlies the z-test, who actually performed that calculation? Was it you or someone who worked for you? A. Someone who works for me. Q. Who was that? A. It's Miguel Villanueva. Q. And to the A. But he does it according to the directions that I've constructed with him and for him. Q. And did you give him any directions regarding pooling or unpooling standard errors? A. No. Q. And did he did you ever discuss

Page 254 Page 255 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 1 2 2 sample versus the non-news sample. errors? 3 3 A. No. I think it depends on what you Q. When did you discuss that matter 4 4 mean by pooling or unpooling. with Miguel? 5 5 We have discussed -- do you mean A. We've -- that's something we've 6 6 pooling and unpooling the standard errors discussed a number of times in many cases. 7 7 across the two samples, or across the two Q. So was that something that you've 8 8 data -- I'm sorry -- the two time regimes, discussed specifically in connection with 9 9 or the news and the non-news samples? this case, or simply in the past in 10 10 Q. The news and the non-news samples. connection with how to perform an FDT 11 11 A. Right. That, we've discussed and we z-test? 12 determined that it's not necessary in this 12 A. It did come up. We've discussed it case. Because, essentially, if the null 13 13 in the past, and it did come up again in hypothesis is that the news and the 14 14 this case. I'm not exactly sure what non-news samples have the same price 15 15 motivated it to come up in this case, but 16 dynamics and, in fact -- well, and you run 16 we did. 17 17 the test under the null hypothesis, then Q. Did you raise it with him, or did he 18 18 raise it with you? there's no need to make adjustment for 19 19 A. I don't recall. volatility. Q. And how long did your discussion 20 The test is run under the null 20 21 hypothesis of market inefficiency in which 21 regarding pooling or unpooling last? 22 22 A. No more than 20 minutes; 15 or 20 the two samples have -- the two samples 23 23 have the same price dynamics. That's why minutes. 24 it's not necessary to make adjustments to 24 Q. And what did you say to him, and 25 the volatility for the two -- to the news 25 what did he say to you about the subject? Page 256 Page 257 1 1 Steven P, Feinstein, Ph.D. Steven P, Feinstein, Ph.D. 2 A. I said that in this context, because 2 dispersion in the residuals from the 3 the null hypothesis -- I explained to him 3 regression. 4 exactly what I explained to you just 4 Q. Isn't it fair to say that standard 5 5 before: that if, in fact, the data are errors can vary considerably based upon 6 6 sample size? such that the volatilities are 7 significantly different between the news 7 A. Well, if you've changed the sample 8 8 and the non-news, well, then that proves size, you're changing the data that you're 9 the market is reacting to news and that 9 estimating over, so they may. 10 10 there's some -- that there's a difference. I have a section in the report where 11 11 That would -- if defense experts would say, I describe the choice of estimation period, we have proof that the volatilities in the 12 and the literature specifically says that 12 13 13 in an event study, you can choose -- there two samples are different, well, then they 14 would have proved market efficiency because 14 are three generally accepted periods: A 15 they would have proved that the information 15 period that straddles the event, a period 16 is impacting the stock price. 16 that precedes the event, or a period that's 17 17 So it's just not a necessary subsequent to the event. 18 What I did is consistent with what's 18 adjustment for this application. 19 Q. What is a standard deviation? 19 done in event study testing. 20 20 A. It's the square root of the average Q. Well, in your z-test, you look at 21 squared distance between each observation 21 two populations, correct? and the mean. 22 22 A. The news versus non-news. 23 O. And what is a standard error? 23 Q. The news versus non-news? 24 A. It's the estimator of -- well, in 24 A. Right. 25 25 this case, it's the estimate of the Q. Right?

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1		1	
1 2	Steven P, Feinstein, Ph.D A. Right.	1 2	Steven P, Feinstein, Ph.D
3	Q. And the news population you look at	3	differences are explained, in part, by the sample size differences?
4	is a total of nine dates, correct?	4	A. Well, that's why you that's the
5	A. That's right.	5	reason no. No, if you've run an F-test
6	Q. The non-news population you look at	6	and an Ansari-Bradley test and determined
7	is a total of two hundred I'm sorry	7	that these are statistically significant
8	321 dates, right?	8	differences in dispersion.
9	A. Approximately, right.	9	Q. And you didn't run an F-test or an
10	Q. Two very different sample sizes,	10	Ansari-Bradley test in this case,
11	correct?	11	correct?
12	A. Right.	12	A. Well, you can't run the
13	Q. And those two different populations	13	Ansari-Bradley and the F-test across two
14	had different standard errors, correct?	14	regressions with a structural break. I can
15	A. Well, if they do, then that's proof	15	do it on each, but I couldn't do it on the
16	that information is impacting the stock	16	entire class period because of the
17	price.	17	structural break, which is why those test
18	If the if there's greater	18	results are not in the report.
19	dispersion in a sample of days where the	19	Q. And you didn't run it either way,
20	stock is being impacted by news than there	20	right?
21	is in a sample of days where there's not as	21	A. I don't know what you mean.
22	much news or not as much news flow, that's	22	Q. Well, you said that you could you
23	proof that the market is not disregarding	23	couldn't run it over the entire class
24	news but, in fact, is reacting to the news.	24	period, but you could do it over each
25	Q. Isn't it possible that the	25	estimation period; is that what you said?
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	A. No. Well, yeah, you since we	2	days.
3	don't have one regression, we have two	3	Q. At some point, sample sizes become
4	regressions, you can't run the	4	too small to be meaningful?
5	Ansari-Bradley test and the F-test over the	5	A. No. At that point, sample sizes
6	entire class period.	6	become too small to run a test to see if
7	Conceivably, you can run it over	7	the standard deviation differences are
8	each subperiod, except now you're talking	8	significant.
9	about a very small sample. It's you're	9	Q. And for that reason, you didn't run
10	looking at dispersion among well, in the	10	an Ansari-Bradley or an F-test?
11	second period, for example, it's almost	11	A. That's right.
12	meaningless to say we're looking at a	12	How about a break?
13	measure of dispersion across three dates.	13	MR. FRANK: Sure, sure.
14	It's just not a meaningful test.	14	THE WITNESS: Is this a decent
15	Q. Why not?	15	time?
16 17	A. Because it's it's a measure of	16	MR. FRANK: Sure. Any time.
17 18	the test is to see whether the dispersion	17	THE VIDEOGRAPHER: We are off
19	among the news days is different from the	18	the record at 2:33.
20	dispersion among the non-news days. But if	19 20	(Pagagg takan from 2.22 mm
21	the news days if you've restricted it to only the post August 9, 2007 data, there's	21	(Recess taken from 2:33 p.m.
22	only three news dates in there. And	22	to 2:46 p.m.)
23	dispersion among three days is just not as	23	THE VIDEOGRAPHER: We are back
24	meaningful is not as meaningful a	24	on the record at 2:46.
25	concept as it would be if it were over nine	25	on the record at 2.40.
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	BY MR. FRANK:	2	A. Well, I told you what we discussed
3	Q. Dr. Feinstein, isn't it fair to say	3	was whether it was necessary to make an
4	that when sample sizes are similar,	4	adjustment to the volatility estimated for
5	statisticians typically employ a pooled	5	the news sample on account of it, perhaps,
6	estimate of the standard error based on	6	being different from the volatility of the
7	both populations?	7	non-news sample and determined that it was
8	A. I would have to see the specific	8	not necessary.
9	application. I don't think that's correct	9	So, if that's what you mean by
10	or accurate, generally.	10	pooling and unpooling, then your question
11	Q. What do you think is wrong about	11	doesn't quite make sense.
12 13	it?	12 13	It's if you mean something else
13	A. I just don't think it's accurate. I	14	by pooling and unpooling, I would need to
15	mean, it depends on the application. Q. When do statisticians use an	15	know. Q. Well, did you discuss with Miguel
16	unpooled approach?	16	the issue of pooling the standard errors in
17	A. Can you define your terms, what you	17	connection with the calculation underlying
18	mean exactly by a pooled approach and an	18	the z-test?
19	unpooled approach?	19	A. Pooling the standard errors from the
20	Q. Well, are you not familiar I	20	two regressions, each run on a different
21	thought you had strike that.	21	part of the class period? That's what you
22	Didn't you discuss the issue of	22	mean?
23	pooling with Miguel from your office	23	Q. No. I'm talking about well,
24	A. Yes.	24	strike that.
25	Q in connection with this matter?	25	When you were speaking to Miguel,
	Page 264		Page 265
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	did you actually use the word "pooling" or	2	you're asking about? I mean, is it a panel
3	"unpooling"?	3	data approach? Is it a are you talking
4	A. No. That's why I clarified before I	4	about a GARCH model? What exactly are you
5	gave my answers before to see if that's	5	asking about? Define your terms. By
6	what you were referring to, that issue.	6	pooling and unpooling, what do you mean?
7	Q. You discussed with him whether any	7	Q. Well, isn't the z-test a formulaic
8 9	adjustments needed to be made given the two	8 9	calculation? A. Well. No, the calculation of the
10	different estimate periods in the regression model?	10	Z-statistic is formulaic, but its
11	A. No.	11	application and its subjecting to
12	Q. What did you discuss with him that	12	diagnostics requires some judgment and
13	you were testifying about earlier?	13	analysis and considerations.
14	A. Whether an adjustment needed to be	14	Q. And when you calculate the
15	made, given the two apparent volatilities	15	Z-statistic, do you need to take into
16	between the news and the non-news sample.	16	account the standard errors for the two
17	Q. And if someone were to ask you about	17	populations you're comparing?
18	the subject of pooling standard errors, you	18	A. I'd have to review that.
19	would say, I don't really know what you're	19	Q. Do you recall
20	talking about; is that fair?	20	A. To check that.
21	A. Well I wouldn't say that I don't	21	Q whether or not the standard error
22	know econometrics or that I don't know I	22	is one of the variables in the Z-statistic
23 24	would ask them, well, what part of	23 24	formula?
24 25	econometrics are you referring to? Are you		A. Oh, this is the standard error of
	talking about panel data? Is that what	25	the let me check. Let me check.

P300 /66 I	Page 267
Page 266	
	teven P, Feinstein, Ph.D
Q. What are you looking at? 2 A. (W	itness reviews document.)
	ll, what's here is the formula for
	istic, which they're also calling
	d standard error of proportion.
6 looking at? 6 Q. An	nd if I ask you to describe how the
7 A. It's Exhibit 106. 7 pooled sta	andard error of a proportion
8 Q. Is that the "Applied Statistics for 8 differs from	om unpooled standard error of a
	n, could you do so?
	yould want to review the
11 It's not. It's the Z-statistic 11 literature	first and the articles.
	t without reviewing any literature
,	s, are you able to do so, as you
that are significant, the proportion of the 14 sit here to	
	vant to be real clear. It's not
	for running the z-test. The
	for the z-test is here, and this is
1	that I used, and it does not
	e calculation it does not
	ys is that it's the pooled
\mathcal{C}	error of proportion that's
22 A. Yes. 22 calculated	
	unpooled is not an element of
f 1	ccording to this article
25 proportion? 25 according	g to this chapter.
Page 268	Page 269
	teven P, Feinstein, Ph.D
	ou did not use the unpooled
	error of a proportion, correct?
4 pooled and unpooled standard error 4 A. Co.	
	d you
	hay have considered it in the
	f the discussion I described
	hich didn't assign those labels to
	dn't calculate a variable that
	during the time of my
	ns, the unpooled standard error.
	d you referred to a conversation
	and had with your colleague,
here now. But I can tell you that for 14 Miguel, co	
	at's right.
16 the sources, it's irrelevant. 16 Q. An	d you during that conversation,
	ted 15 to 20 minutes, you didn't
	rms "pooled" or "unpooled,"
pooled standard error well, let me put 19 correct?	• •
	at's correct.
	d you, actually, aren't certain
	you discussed was the decision as
, ,	er or not to run the calculation in
1	manner or unpooled, correct?
	ly because I haven't heard from
	•

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	Page 270		
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	you what you mean by "pooled" and	2	A. I mean, I don't want to go on the
3	"unpooled."	3	record testifying that I don't know
4	I know what I meant when I was	4	anything about pooled and unpooled, if I
5	having the discussion, but I don't know	5	don't know what you mean by pooled and
6	what you mean when you use those terms.	6	unpooled.
7	Q. Well, when you were having the	7	I may well very know I may very
8	discussion, you didn't use the terms	8	well know a lot about pooled and unpooled
9	"pooled" or "unpooled," correct?	9	standard errors once you explain to me what
10	A. Correct.	10	you're asking about.
11	Q. And looking at this text, we see	11	Q. I
12	that it's a pooled standard error of	12	A. I mean, I can go through my
13	proportion, correct?	13	credentials and tell you
14	A. Yes.	14	Q. I'm sure
15	Q. And you don't really know what the	15	A where I've had to pass exams in
16	unpooled standard error of proportion is,	16	quantitative methods, where I taught
17	right?	17	courses in quantitative methods, oral and
18	A. It's not here. It's not written	18	written exams in order to get my Ph.D.,
19	here. It's not relevant to this test.	19	where I'm sure I covered those aspects of
20	And I may know what it is, if I	20	quantitative methods in econometrics.
21	can possibly tell you my experience with	21	But until you tell me what you're
22	working with it once you show me what, you	22	asking about, I can't tell you I can't
23	know, the source that describes what we're	23	help you understand it better.
24	talking about.	24	Q. Well, let me ask you this question:
25	Q. Well, you don't	25	What is an unpooled standard error of a
	Page 272		Page 273
1		1	
1 2	Steven P, Feinstein, Ph.D	1 2	Steven P, Feinstein, Ph.D
	Steven P, Feinstein, Ph.D proportion?		
2	Steven P, Feinstein, Ph.D	2	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct?
2	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection.	2 3	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes.
2 3 4	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered.	2 3 4 5 6	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT
2 3 4 5	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the	2 3 4 5	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your
2 3 4 5 6	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question.	2 3 4 5 6	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation?
2 3 4 5 6 7	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where	2 3 4 5 6 7	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.)
2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better.	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate.
2 3 4 5 6 7 8 9 10	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know	2 3 4 5 6 7 8 9 10	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they
2 3 4 5 6 7 8 9 10 11	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know about it and what I don't know about it.	2 3 4 5 6 7 8 9 10 11	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they don't have their formula for the
2 3 4 5 6 7 8 9 10 11 12 13	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know about it and what I don't know about it. But until we know what we're talking	2 3 4 5 6 7 8 9 10 11 12 13	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they don't have their formula for the Z-statistic in their article. They just
2 3 4 5 6 7 8 9 10 11 12 13 14	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know about it and what I don't know about it. But until we know what we're talking about, I can't do that.	2 3 4 5 6 7 8 9 10 11 12 13 14	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they don't have their formula for the Z-statistic in their article. They just allude to it. They allude to using the
2 3 4 5 6 7 8 9 10 11 12 13 14 15	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know about it and what I don't know about it. But until we know what we're talking about, I can't do that. BY MR. FRANK:	2 3 4 5 6 7 8 9 10 11 12 13 14 15	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they don't have their formula for the Z-statistic in their article. They just allude to it. They allude to using the Z-statistic.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know about it and what I don't know about it. But until we know what we're talking about, I can't do that. BY MR. FRANK: Q. Do you know strike that. Do you have the FDT article? A. I should. Here it is. Yes.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they don't have their formula for the Z-statistic in their article. They just allude to it. They allude to using the Z-statistic. Q. You used the formula that was set that is set forth in Figure 3.1 of the Applied Statistics textbook, correct?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know about it and what I don't know about it. But until we know what we're talking about, I can't do that. BY MR. FRANK: Q. Do you know strike that. Do you have the FDT article? A. I should. Here it is. Yes. Q. Let me turn your attention to	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they don't have their formula for the Z-statistic in their article. They just allude to it. They allude to using the Z-statistic. Q. You used the formula that was set that is set forth in Figure 3.1 of the Applied Statistics textbook, correct? A. Right.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know about it and what I don't know about it. But until we know what we're talking about, I can't do that. BY MR. FRANK: Q. Do you know strike that. Do you have the FDT article? A. I should. Here it is. Yes. Q. Let me turn your attention to Page 119. Okay?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they don't have their formula for the Z-statistic in their article. They just allude to it. They allude to using the Z-statistic. Q. You used the formula that was set that is set forth in Figure 3.1 of the Applied Statistics textbook, correct? A. Right. MR. MARKOVITS: 13.1?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know about it and what I don't know about it. But until we know what we're talking about, I can't do that. BY MR. FRANK: Q. Do you know strike that. Do you have the FDT article? A. I should. Here it is. Yes. Q. Let me turn your attention to Page 119. Okay? So Page 119 through 122 is a section	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they don't have their formula for the Z-statistic in their article. They just allude to it. They allude to using the Z-statistic. Q. You used the formula that was set that is set forth in Figure 3.1 of the Applied Statistics textbook, correct? A. Right. MR. MARKOVITS: 13.1? THE WITNESS: That's right.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know about it and what I don't know about it. But until we know what we're talking about, I can't do that. BY MR. FRANK: Q. Do you know strike that. Do you have the FDT article? A. I should. Here it is. Yes. Q. Let me turn your attention to Page 119. Okay? So Page 119 through 122 is a section of this article where FDT discussed the FDT	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they don't have their formula for the Z-statistic in their article. They just allude to it. They allude to using the Z-statistic. Q. You used the formula that was set that is set forth in Figure 3.1 of the Applied Statistics textbook, correct? A. Right. MR. MARKOVITS: 13.1? THE WITNESS: That's right. BY MR. FRANK:
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know about it and what I don't know about it. But until we know what we're talking about, I can't do that. BY MR. FRANK: Q. Do you know strike that. Do you have the FDT article? A. I should. Here it is. Yes. Q. Let me turn your attention to Page 119. Okay? So Page 119 through 122 is a section of this article where FDT discussed the FDT z-test, correct? A. Yes.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they don't have their formula for the Z-statistic in their article. They just allude to it. They allude to using the Z-statistic. Q. You used the formula that was set that is set forth in Figure 3.1 of the Applied Statistics textbook, correct? A. Right. MR. MARKOVITS: 13.1? THE WITNESS: That's right. BY MR. FRANK: Q. 13.1? A. Yes.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D proportion? MR. MARKOVITS: Objection. Asked and answered. A. I don't know what you mean by the question. If you direct me to a source where they define the term or if you can define the term for me, I can help you understand it better. I can explain to you what I know about it and what I don't know about it. But until we know what we're talking about, I can't do that. BY MR. FRANK: Q. Do you know strike that. Do you have the FDT article? A. I should. Here it is. Yes. Q. Let me turn your attention to Page 119. Okay? So Page 119 through 122 is a section of this article where FDT discussed the FDT z-test, correct?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D of an FDT test that they ran, correct? A. Yes. Q. And do you know whether or not FDT used the same formula that you used in your z-test calculation? A. (Witness reviews document.) Well, I always assume so. I mean, they say they're using a z-test for comparing the incidence rate. But they don't actually they don't have their formula for the Z-statistic in their article. They just allude to it. They allude to using the Z-statistic. Q. You used the formula that was set that is set forth in Figure 3.1 of the Applied Statistics textbook, correct? A. Right. MR. MARKOVITS: 13.1? THE WITNESS: That's right. BY MR. FRANK: Q. 13.1?

	Page 274		Page 275
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	that formula or another formula; is that	2	MR. MARKOVITS: 13.1.
3	correct?	3	MR. FRANK: 13.1. Thank you,
4	A. Because they don't present	4	Mr. Markovits.
5	because they don't present their formula,	5	BY MR. FRANK:
6	yes.	6	Q. Just so the record's clear, we're
7	Q. Well	7	looking at Exhibit 106, which is the
8	A. But they say they used the	8	"Applied Statistics for Public Policy"
9	Z-statistic, and the Z-statistic is defined	9	textbook excerpt.
10	in the sources.	10	Do you see that?
11	Q. Well, is it fair to say that you	11	A. I do.
12	don't know whether they used the pooled	12	Q. And on first page of the text
13	standard error of a proportion or the	13	it's excerpted which is Page 322 of the
14	unpooled standard error of a proportion?	14	textbook, we see Figure 13.1, correct?
15	A. Without defining our terms, that	15	A. Yes.
16	would be fair to say.	16	Q. And that has a formula that is under
17	Q. Well, let me define our terms.	17	the section heading entitled "The Pooled
18	Do you have the "Applied Statistics	18	Standard Error of a Proportion."
19	for Public Policy" textbook before you?	19	Do you see that?
20	Right under your forearm.	20	A. Yes.
21	I'm sorry, Exhibit 105.	21	Q. And is it your understanding that
22	A. Okay.	22	that formula is the pooled standard error
23	Q. We were discussing before	23	of a proportion?
24	Figure 3.1, correct?	24	A. Because the authors define it as
25	A. Yes.	25	such, yes.
	Dama 276	1	
	Page 276		Page 277
1		1	Page 277 Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D Q. And that is a formula that you used	1 2	
	Steven P, Feinstein, Ph.D		Steven P, Feinstein, Ph.D
2 3 4	Steven P, Feinstein, Ph.D Q. And that is a formula that you used	2 3 4	Steven P, Feinstein, Ph.D stipulated that the variances are
2 3 4	Steven P, Feinstein, Ph.D Q. And that is a formula that you used for purposes of your FDT z-test in this case, correct? A. Yes.	2 3 4 5	Steven P, Feinstein, Ph.D stipulated that the variances are different, then that's akin to accepting
2 3 4 5 6	Steven P, Feinstein, Ph.D Q. And that is a formula that you used for purposes of your FDT z-test in this case, correct? A. Yes. Q. And is it fair to say that you do	2 3 4 5 6	Steven P, Feinstein, Ph.D stipulated that the variances are different, then that's akin to accepting the assumption that the price dynamics of the news sample is different from the price dynamics of the non-news sample.
2 3 4	Steven P, Feinstein, Ph.D Q. And that is a formula that you used for purposes of your FDT z-test in this case, correct? A. Yes. Q. And is it fair to say that you do not know whether or not FDT used that	2 3 4 5	Steven P, Feinstein, Ph.D stipulated that the variances are different, then that's akin to accepting the assumption that the price dynamics of the news sample is different from the price dynamics of the non-news sample. So, I think 158 might be a relevant
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D Q. And that is a formula that you used for purposes of your FDT z-test in this case, correct? A. Yes. Q. And is it fair to say that you do not know whether or not FDT used that formula in connection with their z-test	2 3 4 5 6	Steven P, Feinstein, Ph.D stipulated that the variances are different, then that's akin to accepting the assumption that the price dynamics of the news sample is different from the price dynamics of the non-news sample. So, I think 158 might be a relevant factor in deciphering whether they use a
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	different price dynamics than non-news	2	analysis that's set forth on Page 121 of
3	days, which indicates that news and	3	the FDT article?
4	information matter, which is the essence of	4	A. Yes.
5	informational efficiency.	5	Q. Have you ever done it?
6	Q. You believed that you had no choice	6	A. No.
7	but to calculate your Z-statistic in the	7	Q. If you did it, would that reveal
8	manner you did?	8	whether or not FDT used the same formula
9	A. No, I never said that.	9	that you used?
10	Q. Did you have a choice?	10	A. Possibly. I'm not sure. Until I
11	A. Oh, I could have done it a different	11	try it, I wouldn't know for sure.
12	way, but I just didn't think a different	12	Q. Are you aware of whether or not
13	way was appropriate.	13	using a pooled calculation versus an
14	Q. Well, when you say "appropriate," do	14	alternative calculation that takes into
15	you mean incorrect, or is this a choice	15	account different variances affects your
16	among two acceptable approaches?	16	results?
17		17	
	A. I think the well, I mean, both		A. Well, I'm sure one test is stronger
18	may be acceptable to some degree. But I	18	than the other. So it could be it might
19	think what's more acceptable is the	19	reveal weakness in an alternative approach.
20	stronger test, which would be the way I ran	20	But the test I ran was strong enough
21	it, not making an adjustment for	21	for the purposes that it was applied to.
22	potentially different variances in the two	22	Q. You're not aware of how taking into
23	samples. Because under the maintained null	23	account the potentially different variances
24	hypothesis, the dynamics are the same.	24	that FDT identified in Footnote 158
25	Q. Is it possible to replicate FDT's	25	would affect your results?
	B 000		
	Page 280		Page 281
1		1	
1 2	Steven P, Feinstein, Ph.D	1 2	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D A. No. As I explained, I don't think	2	Steven P, Feinstein, Ph.D A. No, that's not my view. No.
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	public its the level of its competence	2	understanding of the allegation?
3	in and system's ability to detect fraud and	3	Q. Your understanding?
4	analyze loans; concealed from the public	4	A. My understanding of the allegation
5	that it had deviated from adhering to	5	is that they're not limited to the contents
6	stated underwriting standards for the loans	6	of the explicit disclosures made, the
7	that it was acquiring and investing in; and	7	announcements made; that the market some
8	concealing information about its capital	8	disclosure took the form of the
9	adequacy.	9	materialization of the risk on that day.
10	Q. Now, when now you used the word	10	Q. Have you ever heard the expression
		11	"caution loans"?
11 12	"concealed" repeatedly in your answer.	12	
13	Is it your understanding that	13	A. "Caution loans"? No, I I'm not familiar with the term.
	plaintiff's claims in this case are based		
14	solely on omissions, or that there are both	14	Q. Have you ever heard are you
15	affirmative misrepresentations and	15	familiar with the term C-1 or C-2 or EA
16	omissions, or just misrepresentations?	16	loans?
17	A. Both. Omissions and	17	A. Yes. That, I saw in the documents.
18	misrepresentations. That some of what they	18	Q. What is your understanding of what
19	said made other things they said	19	C-1, C-2 or EA loans are?
20	misleading.	20	A. Well, there's the company had a
21	Q. Is it your view that the alleged	21	rating system for riskiness of loans, and
22	misrepresentations and omissions are	22	C-1 and C-2 were at the lower end of the
23	limited to the topics covered by Freddie	23	credit ratings.
24	Mac's disclosures on November 20, 2007?	24	Q. And is it your understanding of this
25	A. No. I mean, my view? Or is it my	25	case that Freddie Mac strike that.
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1		1	
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D Is it your understanding of	2	Steven P, Feinstein, Ph.D the other at this point.
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Page 286 Page 287 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 I think the risks may have losses that were disclosed on 3 3 November 20, 2007 were the result of both materialized somewhat before then. But the 4 repercussions of the risks materializing 4 the materializations of risks that were 5 5 were disclosed, or announced, presented to disclosed and the materializations of risks 6 the marketplace that day. 6 that were not disclosed? 7 Q. Is it possible that some of the 7 MR. MARKOVITS: Objection. 8 8 Calls for speculation. risks that were disclosed that day --9 9 A. Yes, I don't think the record's been strike that. 10 10 Is it possible that the materialized fully developed enough to know -- for me, 11 risks that were disclosed that day had been 11 for my perspective, to know one way or the 12 disclosed at earlier points in time? 12 other. 13 Let me make that a little cleaner. 13 I'm not the trier of fact in this 14 You understand that one of the 14 case, but -- so I would say that from where 15 allegations in this case is that Freddie 15 I sit, anything's possible, and I would Mac didn't adequately disclose certain 16 take all that into account if I were asked 16 17 risks; is that fair? 17 to calculate damages. 18 18 A. Yes, and certain facts. BY MR. FRANK: 19 O. You understand that on November 19 Q. And how would your damages model 20 20th, Freddie Mac disclosed that certain 20 disaggregate amounts associated with risks 21 risks had materialized; is that correct? 21 that were disclosed and amounts associated 22 A. I understand that's the allegation. 22 with risks that were not disclosed? 23 23 And my reading of the news from that day A. Well, there are tools for that. 24 supports that. 24 The -- if they were previously -- if the 25 Q. Is it possible that Freddie Mac's 25 risks were previously disclosed, the price Page 288 Page 289 Steven P, Feinstein, Ph.D 1 1 Steven P, Feinstein, Ph.D 2 would have already -- the price of those 2 findings. 3 disclosures would have already been felt, 3 I would do the same thing with the 4 would have already been impounded in the 4 added advantage of I get to see what 5 5 happened when this information became price. available to the market -- perhaps, in 6 6 And some assessment would have to be 7 made as to what factors that were 7 concert with other information and other 8 8 undisclosed led to losses that were developments, perhaps -- on November 20th. 9 sustained and reported. 9 Q. So we discussed over the course of 10 This is the kind of valuation work 10 the day various tests that you used or that analysts do all the time. 11 11 could have used to assess market 12 Q. When you said earlier there are 12 efficiency, correct? 13 13 tools, what are the tools that you're A. Right. 14 referring to? 14 Q. These tests have names, such as a 15 15 A. Valuation tools, valuation models, z-test or a Ansari-Bradley test or an informed by the literature on various types 16 16 F-test? of information and disclosures and 17 17 A. Right. nondisclosures and also informed, to some 18 Q. Or a Z -- we said z-test already. 18 19 extent, by the empirics of the stock price 19 They have names, correct? 20 movement when the event occurred on 20 A. Right. Q. What are the names of the valuation 21 November 20th. 21 tools or the valuation models that you 22 I mean, analysts, investors value 22 23 stocks all the time under a variety of 23 would use in this case? A. Well, I would use the event study. 24 scenarios, actual scenarios and 24 25 hypothetical scenarios, and report those 25 I would observe to see what the stock price

Page 290 Page 291 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 behavior was when the information became know about. 3 3 available to the marketplace. I would It's a valuation analysis. It's 4 4 done every day for every stock that's disaggregate that information into pieces, 5 5 and I -- and in looking at the models that traded by a large number of analysts. 6 analysts use, I can evaluate how these 6 Q. So I understand you would use your 7 different pieces of information would 7 event study, correct? 8 affect their valuation models and would. 8 A. Yes. 9 therefore, affect the stock price 9 Q. And when you say you would use your 10 10 reasonably. event study, you're referring to the 11 I mean, they use the -- they use 11 single-event event study that assessed 12 discounted cash flow models. They use 12 November 20th, 2007; is that right? 13 valuation multiple models. The literature 13 A. Right, because that event study 14 talks about liquidity effects. The 14 quantifies how much the stock fell after literature talks about reputation effects. 15 15 controlling for market and peer group I would include all of these factors 16 effects. So that would be useful. 16 17 to determine what would the stock price 17 Q. You wouldn't use the study that underlies your z-test; is that correct? 18 18 have been had the full disclosure occurred A. As I sit here now, I don't see how I 19 earlier and what impact unexpected events 19 20 20 related to previously disclosed risks might would. I don't want to foreclose the 21 have also had on the stock price. 21 possibility that there may be some useful 22 I mean, I would do a careful 22 information there. 23 23 analysis of what the market was expecting But it's -- the most useful 2.4 24 versus what they observed, and what risks information empirically would be the 25 they knew about and what risks they didn't 25 residual return from November 20th, which Page 292 Page 293 1 1 Steven P, Feinstein, Ph.D. Steven P, Feinstein, Ph.D 2 comes out of the November 20th event study. 2 interesting names. 3 Q. I think you said you would use a 3 Are there any names to these models 4 4 so that I could -- so that I know what discounted cash flow model; is that 5 5 specific models that you're going to use? correct? 6 6 A. Discounted cash flow. I mean, I A. I could. I mean, until I get into 7 it -- I mean, I would use all models that 7 don't know if I would specifically use the 8 8 are available, all models that are in the discounted cash flow model, but it's 9 literature, whatever -- you know, after the 9 available to me to use. 10 10 Part of it has to do -- part of the record is fully developed and we can see 11 11 what the parties agree or the trier of fact determination as to which models to use 12 has determined or what I'm instructed to 12 would be an evaluation of what models 13 13 assume about the facts, I would know better analysts used when they wrote their 14 14 which valuation models were most reports. 15 15 My recollection is some used appropriate. 16 But at my disposal is discounted 16 valuation multiples models, price earnings, 17 cash flow, price to cash flow. Some of the 17 cash flow, valuation multiple models, event studies run by other -- by academics that 18 18 parts models are often used. 19 are reported in the literature that show 19 MR. MARKOVITS: That's a good 20 20 what is the valuation impact of reputation name, Jason. 21 effects on liquidity shocks. Those kind of 21 A. So these are all at my disposal. 22 22 things would all be relevant and at my BY MR. FRANK: 23 disposal, if I were the damage expert. 23 Q. But to date, you haven't decided how 24 Q. Now, it seems like in terms of 24 you would calculate damages; is that fair 25 25 damages, the models don't have as to say?

Page 294 Page 295 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 2 sorry. If you look at the fourth line --2 A. Well, I've assessed the facts enough 3 3 to know that it's possible, that there's well, we'll start at the end of the third 4 nothing so unusual about this case that it 4 line. 5 5 would be impossible to calculate the value You say "That is, for each class 6 of Freddie Mac's stock in the but-for world 6 member" --7 7 with perfect and correct -- what plaintiffs A. I'm sorry, where are we? 8 8 consider correct disclosure. MR. MARKOVITS: Page 43, small 9 But the specifics of exactly which 9 3? 10 10 model I would use, I have not yet MR. FRANK: Yes, 43, Roman 11 determined. 11 numeral III. 12 I just know that I would have at my 12 THE WITNESS: Okay. 13 13 disposal all valuation models that other BY MR. FRANK: 14 analysts have used to value Freddie Mac and 14 Q. The third line down, you write, other companies. 15 "That is, for each class member, per share 15 16 damages would be calculated as the 16 But I -- but it's really important 17 to note, I have more than they do. I mean, 17 difference between the inflation on the 18 date the shares were purchased and the 18 not only can I use all the models that 19 inflation on the date those same shares 19 other analysts valuing Freddie Mac used, I 20 20 also have the event study and I also have were subsequently sold, excluding any 21 the literature on reputational liquidity 21 inflation dissipation caused by factors 22 22 other than corrective disclosure." effects. 23 23 Do you see that? Q. Let me turn your attention to 24 Paragraph 152, Section 3 of your report. 2.4 A. Yes. 25 Here you say, in Section 3 -- I'm 25 Q. How would per share damages change Page 296 Page 297 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 1 2 if there was a proportion of undisclosed 2 been disclosed. 3 risk? 3 Q. And how exactly would you exclude 4 4 any inflation dissipation caused by factors A. What do you mean? 5 5 The allegation is that there was a other than the corrective disclosure? 6 6 A. Well, the inflation isn't dissipated proportion of undisclosed risk. 7 Q. Well, does your proposed damages 7 by -- there's no inflation caused -- almost 8 model differentiate between risks that were 8 by definition, there's no artificial 9 disclosed and risks that were allegedly 9 inflation caused by factors that aren't 10 10 undisclosed? fraud related. 11 11 A. Yes. So I would have to focus on the 12 O. How so? 12 fraud-related factors that were causing 13 13 A. It would assign damages that stem inflation and the fraud-related artificial from the losses from the actionable --14 14 inflation that dissipated upon the actionable misrepresentations and omissions 15 15 disclosure. 16 that concealed risks. 16 Q. When you say "the inflation Q. As between the proportion of 17 dissipation caused by factors other than 17 corrective disclosure," what do you mean? undisclosed risk and disclosed risk, how 18 18 19 would per share damages change if the 19 A. That's -- you know, that's 20 20 hearkening back to the Dura decision. proportion of undisclosed risk was increased? 21 21 Dura, D-u-r-a. 22 22 A. Damages would go up. Even if there was artificial Q. And how --23 23 inflation caused by actionable A. I mean, if, in fact, it's determine 24 24 misrepresentations and omissions, if that 25 that those undisclosed risks should have 25 artificial inflation dissipates for some

Page 298 Page 299 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 reason that's not a corrective disclosure, does the inflation ribbon band stay the 3 3 it's not recoverable is what Dura same as a general matter? 4 4 A. If it's a percentage ribbon, no. instructs. 5 5 So I would have to see, for example, The inflation ribbon would -- the inflation 6 6 would decrease. But that decrease I mean, I haven't decided yet, but if it's 7 7 a percentage ribbon, for example, a pre-Dura, we would call it, that would have 8 percentage inflation ribbon, and the 8 been considered damages, but post-Dura, 9 inflation dissipates, not because there's a 9 that's not, that has to be excluded from 10 corrective disclosure but rather because 10 damages. 11 the stock price fell for other reasons, 11 Q. And have you excluded inflation 12 that reduction of inflation -- of 12 dissipation in other cases? 13 13 artificial inflation is not recoverable. A. Oh, yes. 14 It would be excluded from the calculation 14 Q. Now, in Paragraph 152, Section 1, you state that "First valuation tools, 15 of damages. 15 16 Q. And how would you be able to 16 which would include event study analysis 17 determine how much inflation to exclude? 17 such as that described herein, and 18 A. Well, in that example I just gave, 18 potentially other empirical analysis, if 19 if there's no corrective disclosure, all of 19 necessary, would be used to establish that 20 20 the inflation dissipation that occurred the disclosures correcting the alleged 21 that day as a result of the stock price 21 misrepresentations and omissions caused the 22 falling for unrelated reasons should be 22 price of Freddie Mac common stock to fall." 23 23 excluded; all of it. If it's -- if there's A. Yes. 24 no corrective disclosure that day. 24 Q. Is it fair to say that you have not 25 Q. If -- but if the stock price falls, 25 actually created a damages model for this Page 300 Page 301 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 1 2 case other than to describe your approach 2 the model. I haven't calculated inflation 3 to damages at a broad level? 3 yet. But I -- but I did -- I did do an 4 4 A. No, I don't think that's fair to examination to determine that I could. 5 5 Q. To be clear, you've not performed a say. 6 6 damages analysis for this case beyond what I think the damage model that I explain here -- I haven't created it. I 7 7 you state in your report, correct? 8 8 mean, it's fair to say that I didn't create A. That's right. 9 the damage model. 9 Q. And do you know if you would make 10 10 The damage is the damage model any changes to the event study model in 11 11 that's usually used by experts, myself connection with calculating damages? 12 included, and other experts in 10b-5 cases 12 A. I don't think I would. But I'll 13 13 and has been accepted by courts. certainly take into account what your The damage model is to -- is an 14 14 experts propose. If they think there's 15 out-of-pocket model. I didn't invent it, 15 some other type of regression that's 16 but it's what's been determined as 16 superior to one that I wrote and ran, I 17 17 applicable to a 10b-5 case. would consider that. And so that it might 18 18 It's a calculation of inflation, and call for a change. 19 the change of inflation over the investors' 19 I don't think that's the case. As I 20 20 holding period is the basis of the damages, sit here now, I think I did it right, and I 21 with exclusions made for dissipation that's 21 can't imagine a better way. 22 22 But if I'm proved wrong and not fraud related. So that's the model. It's not --23 23 convinced that there's a better way, I 24 that's not just a -- that is the model. 24 would certainly adapt. 25 25 Q. In Paragraph 155, you state that I mean, I haven't actually executed

Page 302 Page 303 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 your damages -- your "damages methodology impacts the valuation -- that impacts the 3 3 will take into account all relevant correct valuation of the stock in the 4 valuation factors and do so correctly." 4 but-for world, I would take it into 5 5 Do you see that? account. 6 6 A. Yes. Q. Well, what specific steps are 7 7 involved in taking into account valuation O. What are the relevant valuation 8 8 factors? factors correctly? 9 9 A. Well, I don't know yet. For sure, I A. Well, what the steps are, the goal 10 10 mean, these are -- I wrote that sentence in is to calculate an inflation ribbon. And 11 response, in a previous case, you know, to 11 the inflation ribbon is -- well, the 12 someone who suggested that I would make --12 inflation at any point in time is the 13 13 that I would necessarily perform difference between the observed stock price 14 valuation -- commit valuation errors. 14 for Freddie Mac and what the stock price For the record, I don't think I 15 15 would have been had there been full 16 16 will. I will try to do it correctly and disclosure, full and complete and correct 17 consistent with valuation methodologies 17 disclosure, on that same day. 18 that are generally accepted and widely 18 So, I mean, the allegation is that 19 19 had there been full and correct disclosure, used. 20 20 But, for example if there's some -the price would have been lower. 21 if some factor is -- if I become aware of a 21 I'll study and analyze to see if 22 factor, through my research into the 22 that's the case. 23 23 history and experience of this company, And in studying and analyzing to see 24 either my own research or something I read 24 if that's the case, I'll take into account 25 in the -- as this case develops, that 25 all the things that may have affected the Page 304 Page 305 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D. 2 2 stock price on that day had there been full the class period, I would take that into 3 and complete disclosure. 3 account. 4 4 Q. Now, in addition, you say, "If I wouldn't just necessarily assume 5 5 varying investment risk is an issue, the that the change in price when the risk 6 6 became known to the marketplace necessarily full set of generally accepted and widely 7 used valuation tools will measure the 7 applies to all earlier dates in the class 8 8 valuation impact of risk, just as investors period. 9 and analysts routinely take this factor in 9 Q. Well, how specifically do investors 10 10 account in real-time." and analysts routinely take risk into 11 11 account in real-time? Do you see that? 12 12 A. Well, that's how they value stocks. A. Yes. Q. What issues arise with varying 13 13 I mean, if it's a discounted cash flow 14 model, the numerator is projected future 14 investment risk in term of your efforts to 15 15 calculate damages? cash flows, the denominator is a discount 16 A. Well, it's possible that the 16 rate, which has -- and discount rate is 17 typically higher for riskier stocks. If 17 valuation impact of a piece of information 18 there's greater risk, discounting will be 18 is either greater or less earlier in the 19 class period than it was at the end of the 19 at a higher rate to produce lower security 20 20 class period. I would take that into price. 21 account. 21 Another way that risk is taken into 22 22 account is expected future cash flows. If If the -- if the disclosure of risk 2.3 23 would have a very -- let's say a very small there's scenarios that the market is aware 24 impact late in the class period but a very 24 of in which substantial losses could be large impact on the stock price early in 25 25 realized, the numerator or the expected

	Page 306		Page 307
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	cash flow would reflect that by probability	2	So the company knew that it would
3	weighting potential scenarios that are	3	not be approved? Is that what you said?
4	associated with different cash flows.	4	Q. Yes.
5	So that's two ways that it's taken	5	A. But they told the public it would be
6	into account.	6	approved?
7	There may be others, but at least	7	Q. Yes.
8	those two address your question.	8	A. And then and so the market
9	Q. Let me give you a hypothetical.	9	expected it to be approved, the company
10	An energy company tells investors	10	knew it would not be approved, so that's
11	that it is certain to receive regulatory	11	why the stock price is inflated. And then
12	approval from the Environmental Protection	12	when it's not approved, the stock price
13	Agency to build a major oil pipeline when,	13	falls, and there's no disagreement among
14	in fact, the company knew that the EPA was	14	any participants about the value of that
15	not going to approve the project.	15	was it an oil refinery or a power plant?
16	Assume that when the EPA announces	16	Q. Major oil pipeline.
17	its refusal to approve the project the	17	A. Pipeline. So there's no
18	stock price declines by \$10.	18	disagreement about what the value of this
19	Dr. Feinstein's engaged	19	pipeline is worth. It's not like the EPA
20	A. Can I just interrupt?	20	said, you can never build a pipeline, which
21	Q. Yes.	21	would have a bigger effect than if they
22	A. Can I	22	said, you can't build this specific
23	Q. I'm just getting to the juicy part.	23	pipeline in a small geography.
24	A. Well, I just want to make sure that	24	Q. Well, without adding those facts to
25	I understand the nonjuicy part.	25	the hypothetical
20	i understand the nonjurey part.	20	the hypothetical
	D 200		
	Page 308		Page 309
1	_	1	
1 2	Steven P, Feinstein, Ph.D	1 2	Steven P, Feinstein, Ph.D
1 2 3	Steven P, Feinstein, Ph.D A. Okay.	1 2 3	Steven P, Feinstein, Ph.D pipeline was?
2	Steven P, Feinstein, Ph.D A. Okay. Q I will just say that when the	2	Steven P, Feinstein, Ph.D pipeline was? Q. Assume that's the case.
2 3	Steven P, Feinstein, Ph.D A. Okay. Q I will just say that when the news comes out that the EPA is refusing to	2 3	Steven P, Feinstein, Ph.D pipeline was? Q. Assume that's the case. A. And there's no disagreement about
2 3 4	Steven P, Feinstein, Ph.D A. Okay. Q I will just say that when the	2 3 4	Steven P, Feinstein, Ph.D pipeline was? Q. Assume that's the case. A. And there's no disagreement about the implications of this refusal for any
2 3 4 5	Steven P, Feinstein, Ph.D A. Okay. Q I will just say that when the news comes out that the EPA is refusing to approve the project, the stock price	2 3 4 5	Steven P, Feinstein, Ph.D pipeline was? Q. Assume that's the case. A. And there's no disagreement about
2 3 4 5 6	Steven P, Feinstein, Ph.D A. Okay. Q I will just say that when the news comes out that the EPA is refusing to approve the project, the stock price declines by \$10.	2 3 4 5 6	Steven P, Feinstein, Ph.D pipeline was? Q. Assume that's the case. A. And there's no disagreement about the implications of this refusal for any future regulatory actions whatsoever.
2 3 4 5 6 7	Steven P, Feinstein, Ph.D A. Okay. Q I will just say that when the news comes out that the EPA is refusing to approve the project, the stock price declines by \$10. A. Okay.	2 3 4 5 6 7	Steven P, Feinstein, Ph.D pipeline was? Q. Assume that's the case. A. And there's no disagreement about the implications of this refusal for any future regulatory actions whatsoever. So there's absolutely no
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D A. Okay. Q I will just say that when the news comes out that the EPA is refusing to approve the project, the stock price declines by \$10. A. Okay. Q. A gentleman named Dr. Feinstein is	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D pipeline was? Q. Assume that's the case. A. And there's no disagreement about the implications of this refusal for any future regulatory actions whatsoever. So there's absolutely no distribution among economic ramifications
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Steven P, Feinstein, Ph.D A. Okay. Q I will just say that when the news comes out that the EPA is refusing to approve the project, the stock price declines by \$10. A. Okay. Q. A gentleman named Dr. Feinstein is engaged by a shareholder. He determines that the market is efficient, and the stock price fell \$10 as a result of a concealment that the EPA would be declining approval. What was the amount of the stock price inflation on the date of the misrepresentation? A. So that's why we need to clarify	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Steven P, Feinstein, Ph.D pipeline was? Q. Assume that's the case. A. And there's no disagreement about the implications of this refusal for any future regulatory actions whatsoever. So there's absolutely no distribution among economic ramifications of the decision. The only moving part is the market's understanding of the probability. So, like, in the real world, for any decision, two things are moving: the probability is being adjusted and updated with new information, but also so is the economic ramifications of various outcomes
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Steven P, Feinstein, Ph.D A. Okay. Q I will just say that when the news comes out that the EPA is refusing to approve the project, the stock price declines by \$10. A. Okay. Q. A gentleman named Dr. Feinstein is engaged by a shareholder. He determines that the market is efficient, and the stock price fell \$10 as a result of a concealment that the EPA would be declining approval. What was the amount of the stock price inflation on the date of the misrepresentation? A. So that's why we need to clarify the in order to answer the question, I	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Steven P, Feinstein, Ph.D pipeline was? Q. Assume that's the case. A. And there's no disagreement about the implications of this refusal for any future regulatory actions whatsoever. So there's absolutely no distribution among economic ramifications of the decision. The only moving part is the market's understanding of the probability. So, like, in the real world, for any decision, two things are moving: the probability is being adjusted and updated with new information, but also so is the economic ramifications of various outcomes and scenarios.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Steven P, Feinstein, Ph.D A. Okay. Q I will just say that when the news comes out that the EPA is refusing to approve the project, the stock price declines by \$10. A. Okay. Q. A gentleman named Dr. Feinstein is engaged by a shareholder. He determines that the market is efficient, and the stock price fell \$10 as a result of a concealment that the EPA would be declining approval. What was the amount of the stock price inflation on the date of the misrepresentation? A. So that's why we need to clarify the in order to answer the question, I need more information. Q. What information do you need? A. Possibly more analysis, but even more information. So there is no disagreement among any parties this is what I asked before there's no disagreement among any	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Steven P, Feinstein, Ph.D pipeline was? Q. Assume that's the case. A. And there's no disagreement about the implications of this refusal for any future regulatory actions whatsoever. So there's absolutely no distribution among economic ramifications of the decision. The only moving part is the market's understanding of the probability. So, like, in the real world, for any decision, two things are moving: the probability is being adjusted and updated with new information, but also so is the economic ramifications of various outcomes and scenarios. But in your hypothetical, your unrealistic hypothetical, there's no there's no disagreement about the economic value of the EPA's decision. Okay. Q. Fair enough. A. All right. And so, since there's no
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D A. Okay. Q I will just say that when the news comes out that the EPA is refusing to approve the project, the stock price declines by \$10. A. Okay. Q. A gentleman named Dr. Feinstein is engaged by a shareholder. He determines that the market is efficient, and the stock price fell \$10 as a result of a concealment that the EPA would be declining approval. What was the amount of the stock price inflation on the date of the misrepresentation? A. So that's why we need to clarify the in order to answer the question, I need more information. Q. What information do you need? A. Possibly more analysis, but even more information. So there is no disagreement among any parties this is what I asked	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D pipeline was? Q. Assume that's the case. A. And there's no disagreement about the implications of this refusal for any future regulatory actions whatsoever. So there's absolutely no distribution among economic ramifications of the decision. The only moving part is the market's understanding of the probability. So, like, in the real world, for any decision, two things are moving: the probability is being adjusted and updated with new information, but also so is the economic ramifications of various outcomes and scenarios. But in your hypothetical, your unrealistic hypothetical, there's no there's no disagreement about the economic value of the EPA's decision. Okay. Q. Fair enough.

Page 310 Page 311 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 the decision, the company knew that its probability of approval was only 90 percent 3 3 stock price should have been \$10 less all and the company knew it. It concealed the 4 4 10 percent risk that the EPA would deny along. 5 5 And if -- and if -- and as the approval. 6 6 forensic analyst, I would likely -- I mean, Assume that risk materialized and 7 7 probably with more time, I would think the stock price declined by \$10, just like 8 8 about it a lot longer than this -- but as a we discussed earlier. 9 forensic analyst, I would estimate what 9 In that case, what is the -- all 10 10 would other people have forecasted or else being equal, what was the inflation of estimated the price to be, what would they 11 the stock price at the time that the 11 12 have assigned as a price? And it seems 12 misrepresentation was made? 13 reasonable from your hypothetical that it 13 A. Well, again, it's -- I want to point 14 would have been \$10. 14 out why the hypothetical is highly So the inflation would be \$10. 15 15 unrealistic. It's because in the real 16 16 Q. And let's change the hypothetical world, there is a range of -- there's a 17 17 distribution and a range of potential slightly. 18 18 economic repercussions or implications of A. Okay. 19 Q. We'll agree with all the caveats 19 the decision. 20 that you just shared with me. All else 20 There's reputation effects that have 21 being equal, we're only going to change the 21 to be considered that, you know, the --22 following facts: 22 well, actually -- that's why it takes 23 23 When the company tells investors more -- it's more analysis than I can do 24 that it is certain to receive regulatory 24 just sitting here right on the spot. 25 approval from the EPA, in fact, the 25 It would have to take into account Page 312 Page 313 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D. 2 reputation effects. It would have to take 2 A. But the real world is more 3 into account that the EPA's decision --3 complicated because you have two 4 4 well, we would have to take into account distributions. You have uncertainty about 5 5 why the EPA decided that and whether the the probabilities. You also have 6 6 uncertainty about the nature of the reason for EPA's rationale for rejecting 7 the pipeline applies to other projects at 7 economic implications of the EPA's 8 8 the company, future projects of the decision. 9 company, the company's viability, the 9 When people see the stock price fall 10 10 company's ability to operate as an oil \$10, it may actually be the case that the 11 11 pipeline company going forward. prior inflation was greater than \$10 12 So it's more complicated in the real 12 because maybe the EPA said, your pipeline 13 13 world. is being rejected, but this has no bearing 14 14 But in the hypothetical, in the on your future business and we may very 15 15 well revisit your case in six months after extremely unrealistic hypothetical, if, in 16 fact, there's absolute 100 percent 16 you do some clean-up operations, in which 17 17 agreement, not only among all parties case the price dropped less than what the 18 18 involved but all -- that all parties know inflation would have been prior to that 19 with certainty, which they generally don't 19 disclosure. 20 20 in the real world, but if they knew in this Those are the kind of things that 21 hypothetical what the stock price -- what 21 have to be analyzed in the real-world the valuation implication of the EPA's 22 example that don't fit neatly into the 22 23 decision was, then the inflation would be 23 hypothetical. 24 less than the full \$10 in that example. 24 Q. In my second hypothetical, the 25 25 Q. And in the -company concealed a 10 percent chance of a

Page 314 Page 315 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 2 2 \$10 loss, correct? Q. So in my hypothetical, there's only 3 3 A. But we're assuming in that second a 10 percent chance of a \$10 loss, correct? 4 4 A. Right. hypothetical that everyone knew it had to 5 5 be a \$10 loss. It couldn't be more. It Q. And it wouldn't be fair to calculate 6 6 the inflation amount associated with the couldn't be less. 7 7 misrepresentation as a \$10 inflation, And the in the real world, when you 8 8 observe the \$10 loss, you have to take into correct? 9 account that the loss might have been 9 A. Right, but -- yes, because everyone 10 10 knows that the maximum possible extent of 20, it might have been 50, it might have 11 been a \$100 loss. So \$10 might, actually, 11 the loss was \$10 and it could not 12 be relatively good news. 12 conceivably been higher. 13 Q. Let me be clear, if I wasn't before. 13 If that \$10 turns out to be on the 14 I'm asking you a hypothetical. 14 smaller side of the range of possible losses, then the inflation earlier might 15 15 A. Right. 16 have been greater than \$10, even if the 16 Q. I'm not asking you about the real 17 17 probability wasn't 0/100, but 90/100. world. A. I understand that you're not asking 18 18 Q. Now, how does your proposed damages 19 19 me about the real world. model take into account the differences 20 20 Q. So let's -- let's just be clear, so between my first hypothetical where the 21 we have no confusion, that we'll be clear 21 entire loss is -- the entire risk of loss 22 22 when we're talking about the real world and is concealed, and my second hypothetical 23 23 where only a portion of the risk of loss is we'll be clear when we're talking about 2.4 24 hypotheticals. concealed? 25 A. Okay. 25 A. From investigation and analysis of Page 316 Page 317 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 1 2 what caused the loss. 2 caused the actual loss were risks that were 3 How much was foreseeable given what 3 previously disclosed or risks that were 4 4 was known and what was -- and how much undisclosed. 5 5 would have been foreseeable given what was Q. And how will you -- so how will you 6 6 calculate those differences? concealed? That's the kind of analysis 7 that investors and analysts do all the 7 A. Again, I mean, just as a preamble, 8 8 time. let me say that there's widely used 9 Q. Well, you understand that this is a 9 generally accepted methodology for doing 10 10 case that involves a loss that was exactly that. 11 11 disclosed on November 20 of 2007, correct? If you look at analyst reports, they 12 12 often provide a table of potential A. Right. 13 13 Q. And you understand that you may be scenarios based on the range of possible 14 outcomes given risks as they understand 14 faced with a prospect, if you're going to 15 15 calculate damages, with, disaggregating the them to be. 16 amount of the loss that was associated with 16 And since they're able to construct 17 17 risks that were disclosed and the amount of that table, they're also able -- I would be 18 18 the loss that's associated with risks that able to use their methodologies and 19 were allegedly not disclosed, correct? 19 construct a table that's different on 20 20 A. For sure. I never said it would be account of a different set of risks that 21 easy, but I don't believe it's impossible. 21 may have been -- that -- in the but-for O. So I'm just trying to understand how 22 22 world would have been disclosed. you would do it. 23 23 So if other analysts are able to A. By investigating what caused the 24 24 produce a table of scenarios and outcomes 25 actual loss and whether the factors that 25 given known risks, I would -- I could use

	Daga 210		Dama 210
	Page 318		Page 319
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	the same tools, or another damage expert	2	economic the econometric tools that
3	can use the same tools to prepare an	3	you'll use to disaggregate those two kinds
4	alternative table and then compare the two.	4	of losses?
5	But the way that's done is to look	5	A. Valuation analysis. This is
6	at it's to get into the weeds and get	6	valuation analysis, news analysis,
7	into the analysis of what caused the actual	7	information analysis, scenario analysis.
8	loss and how much of that loss was caused	8	Q. I'm showing you a document that was
9	by known risks versus unknown risks.	9	previously marked as Exhibit No. 28 in this
10	Did the did the did defaults	10	case.
11	and losses on Freddie Mac's retained	11	Exhibit No. 28 is the company's
12	portfolio for example, can you estimate	12	annual report for the year 2005, which is
13	that they were outside the norm of what	13	dated June 28, 2006.
14	would have been reasonably expected, given	14	Have you ever seen Exhibit 28
15	the nature of the risks that they had	15	before?
16	previously disclosed?	16	A. (Witness reviews document.)
17	That's the question that would have	17	Yes, I believe so.
18	to be investigated.	18	Q. Did you review Exhibit 28 in
19	Q. What	19	connection with preparing your report?
20	A. And based on the answer to that	20	A. (Witness reviews document.)
21	question, you can differentiate between	21	No, this is 2005. Exhibit 28 is the
22	losses that were caused by known risks	22	2005 annual report. I read the 2006 and
23	versus losses that were caused by concealed	23	2007.
24	risks.	24	Q. So you didn't read the 2005 annual
25	Q. And what are the names of the	25	report?
20	Q. This what are the hames of the		report.
	Page 320		Page 321
1	Page 320	1	Page 321 Stayon P. Foinstein, Ph.D.
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D A. According to my Exhibit 1, that's	2	Steven P, Feinstein, Ph.D publicly available prior to the class
2 3	Steven P, Feinstein, Ph.D A. According to my Exhibit 1, that's correct.	2 3	Steven P, Feinstein, Ph.D publicly available prior to the class period, correct?
2 3 4	Steven P, Feinstein, Ph.D A. According to my Exhibit 1, that's correct. Q. Well, I draw your attention to	2 3 4	Steven P, Feinstein, Ph.D publicly available prior to the class period, correct? A. Yes.
2 3 4 5	Steven P, Feinstein, Ph.D A. According to my Exhibit 1, that's correct. Q. Well, I draw your attention to page to the first page of the	2 3 4 5	Steven P, Feinstein, Ph.D publicly available prior to the class period, correct? A. Yes. Q. Now, let me turn your attention to
2 3 4 5 6	Steven P, Feinstein, Ph.D A. According to my Exhibit 1, that's correct. Q. Well, I draw your attention to page to the first page of the information statement that comes after the	2 3 4 5 6	Steven P, Feinstein, Ph.D publicly available prior to the class period, correct? A. Yes. Q. Now, let me turn your attention to Page 65. Actually, I'll turn your
2 3 4 5 6 7	Steven P, Feinstein, Ph.D A. According to my Exhibit 1, that's correct. Q. Well, I draw your attention to page to the first page of the information statement that comes after the colored pages, and on its face it says,	2 3 4 5 6 7	Steven P, Feinstein, Ph.D publicly available prior to the class period, correct? A. Yes. Q. Now, let me turn your attention to Page 65. Actually, I'll turn your attention to Page 67.
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D A. According to my Exhibit 1, that's correct. Q. Well, I draw your attention to page to the first page of the information statement that comes after the colored pages, and on its face it says, "Information Statement and Annual Report to	2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D publicly available prior to the class period, correct? A. Yes. Q. Now, let me turn your attention to Page 65. Actually, I'll turn your attention to Page 67. Do you see on Page 67, there's a
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	Page 322		Page 323
1		1	
1 2	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
3	A. Yes.	2 3	objection, but go ahead.
3 4	Q. And you were aware that it was		A. I can tell you what I see here now.
	showing its LTV for all of the mortgage	4	I just don't recall data what data
5 6	loans in its guaranteed portfolio, right?	5	similar to this I've seen for this case
7	MR. MARKOVITS: Objection.	6 7	throughout the class period.
	That's a matter in dispute.		BY MR. FRANK:
8	BY MR. FRANK:	8	Q. Now let me turn your attention back
9	Q. You can answer.	9	to Page 65.
10 11	A. I was going to say something along	11	Do you see at the bottom of the
12	those lines, that I know what they	12	page, there's a paragraph that states,
13	purported to report.	13	"During 2005 and 2004, there was a rapid
14	I know I've seen printed pages	14	proliferation of alternative product types
15	like this before, but I understand that	15	designed to address a variety of borrower
16	there's some dispute about how disclosive and correct that was.	16	needs, including issues of affordability and lack of income documentation."
17		17	Do you see that?
18	Q. Do you see the section on credit score?	18	A. I see that.
19	A. Yes.	19	Q. Do you see it says, "While each of
20		20	these products has been on the market for
21	Q. Were you aware that Freddie Mac was disclosing the loans in its portfolio and	21	
22		22	some time, their prevalence increased in 2005 and 2004."
23	in its guaranteed portfolio by credit score?	23	
24	A. I can tell you	24	Do you see that? A. Yes.
25	MR. MARKOVITS: Same	25	Q. And it says, "We expect each of
23	WIK. WIARKOVITS. Sallie	25	Q. And it says, we expect each of
	Page 324		7 205
	1 agc 324		Page 325
1		1	
1	Steven P, Feinstein, Ph.D	1 2	Steven P, Feinstein, Ph.D
	Steven P, Feinstein, Ph.D these products to default more often than	2	Steven P, Feinstein, Ph.D connection with developing your damages
2 3	Steven P, Feinstein, Ph.D these products to default more often than traditional products, and we consider this	2 3	Steven P, Feinstein, Ph.D connection with developing your damages model?
2 3 4	Steven P, Feinstein, Ph.D these products to default more often than traditional products, and we consider this when determining our guarantee fee."	2 3 4	Steven P, Feinstein, Ph.D connection with developing your damages model? A. Well, that's why we need the at
2 3 4 5	Steven P, Feinstein, Ph.D these products to default more often than traditional products, and we consider this when determining our guarantee fee." Do you see that?	2 3 4 5	Steven P, Feinstein, Ph.D connection with developing your damages model? A. Well, that's why we need the at this point, I need the full development of
2 3 4	Steven P, Feinstein, Ph.D these products to default more often than traditional products, and we consider this when determining our guarantee fee." Do you see that? A. I do see that.	2 3 4 5 6	Steven P, Feinstein, Ph.D connection with developing your damages model? A. Well, that's why we need the at this point, I need the full development of the record to see what's adjudicated as
2 3 4 5 6 7	Steven P, Feinstein, Ph.D these products to default more often than traditional products, and we consider this when determining our guarantee fee." Do you see that? A. I do see that. Q. And then it says, "Our purchase of	2 3 4 5 6 7	Steven P, Feinstein, Ph.D connection with developing your damages model? A. Well, that's why we need the at this point, I need the full development of the record to see what's adjudicated as being supported allegations of concealment
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D these products to default more often than traditional products, and we consider this when determining our guarantee fee." Do you see that? A. I do see that. Q. And then it says, "Our purchase of interest-only and option-arm mortgage	2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D connection with developing your damages model? A. Well, that's why we need the at this point, I need the full development of the record to see what's adjudicated as being supported allegations of concealment and misrepresentations and omissions.
2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D these products to default more often than traditional products, and we consider this when determining our guarantee fee." Do you see that? A. I do see that. Q. And then it says, "Our purchase of interest-only and option-arm mortgage products increased in 2005, representing	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D connection with developing your damages model? A. Well, that's why we need the at this point, I need the full development of the record to see what's adjudicated as being supported allegations of concealment and misrepresentations and omissions. Once I understand what the
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	Page 326		Page 327
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	to believe had there been more full	2	MR. MARKOVITS: Objection.
3	disclosure.	3	It's not within the scope of his opinions.
4		4	A. I understand that that's the
5	(Exhibit No. 108	5	allegation. And my understanding is that
6	marked for identification.)	6	it corrected it in the sense that it
7		7	removed the inflation that had previously
8	BY MR. FRANK:	8	been caused by misrepresentations and
9	Q. Let me turn your attention to a	9	omissions.
10	document that's been marked as	10	BY MR. FRANK:
11	Exhibit 108.	11	Q. Do you have an understanding of the
12	Exhibit 108 is Freddie Mac's press	12	meaning of the term "subprime loan"?
13	release from November 20 of 2007, correct?	13	A. I have an understanding of it.
14	A. Yes.	14	MR. MARKOVITS: Objection.
15	Q. This is the press release where	15	A. I also understand that it's a matter
16	Freddie Mac reported a third quarter 2007	16	of some dispute in this case, and it's been
17	net loss of 2 billion or \$3.29 per diluted	17	suggested in this case that there's no
18	share.	18	consensus meaning to the term.
19	Do you see that?	19	Although so it's always meant
20	A. Yes.	20	something to me.
21	Q. Is it your understanding that this	21	BY MR. FRANK:
22	press release corrected a prior	22	Q. What what has it always meant to
23	misrepresentation, according to the	23	you?
24	plaintiff, relating to Freddie Mac's	24	A. These are loans that are more
25	exposure to subprime loans?	25	credit that, for a variety of potential
	Page 328		
	rage 320		Page 329
1	_	1	
1 2	Steven P, Feinstein, Ph.D reasons, riskier than conventional,	1 2	Steven P, Feinstein, Ph.D MR. MARKOVITS: Objection.
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	A. Yes.	2	misrepresentations and omissions remain as
3	MR. FRANK: Okay. Let's go	3	are supported as actionable, I can
4	off the record.	4	calculate the impact of those particular
5	THE VIDEOGRAPHER: We're going	5	misrepresentations and omissions on the
6	off the record at 3:59.	6	stock price throughout the class period,
7	on the record at 3.37.	7	compare that but-for price to the actual
8	(Recess taken from 3:59 p.m.	8	price to construct an inflation ribbon, and
9	to 4:29 p.m.)	9	then damages for any individual investor
10	to 4.29 p.m.)	10	
11	THE VIDEOGRAPHER: Back on the	11	would be the change in the inflation over
12	record at 4:29.	12	the course of their holding period subject
13	record at 4.29.	13	to the Dura cap.
	DVAM EDANIZ		Q. I think you were saying to me
14	BY MR. FRANK:	14	earlier before the break that the world is
15	Q. Dr. Feinstein, have you proposed a	15	complicated.
16	damages model that will allow you to	16	A. Yes.
17	separate out damages caused by any of the	17	Q. And aren't there some
18	alleged misstatements or omissions	18	misrepresentations alleged
19	individually?	19	misrepresentations that are about similar
20	A. I believe so.	20	subjects?
21	Q. And how does your damages model do	21	A. Yes.
22	that?	22	Q. And how would you disaggregate the
23	A. We talked about that before the	23	impact of those alleged misrepresentations
24	break.	24	about similar subjects?
25	Once I understand what	25	A. With estimation about how the
	Page 332		Page 333
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	information impacted the stock price.	2	might affect the probability of future cash
3	Q. And how would you go about making	3	flows or the probability for stated value
4	that estimation?	4	of expected performance metrics, that would
5	A. Again, it's an exercise in	5	indicate what the change in value should be
6	valuation.	6	as a result of the changing information
7	How does changing information	7	
8		/	set.
0	what analysts and investors do every day is	8	set.
9	what analysts and investors do every day is they observe what information has changed		<u> </u>
		8	set. Q. What are the specific estimation and
9	they observe what information has changed	8 9 10 11	set. Q. What are the specific estimation and valuation tools that you just referenced?
9 10	they observe what information has changed about the subject security and based on the	8 9 10	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation
9 10 11	they observe what information has changed about the subject security and based on the change in the information for the subject	8 9 10 11	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects
9 10 11 12	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium	8 9 10 11 12	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also
9 10 11 12 13	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium price, a new price that they believe or	8 9 10 11 12 13	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also with some information from the event study.
9 10 11 12 13 14	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium price, a new price that they believe or a new value that they believe the security is worth.	8 9 10 11 12 13 14	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also with some information from the event study. There may be others, but that's what
9 10 11 12 13 14 15	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium price, a new price that they believe or a new value that they believe the security is worth. I would do the same thing. As	8 9 10 11 12 13 14 15	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also with some information from the event study. There may be others, but that's what comes to mind now.
9 10 11 12 13 14 15	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium price, a new price that they believe or a new value that they believe the security is worth. I would do the same thing. As pieces of information change, I would	8 9 10 11 12 13 14 15 16	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also with some information from the event study. There may be others, but that's what comes to mind now. Q. In connection with your damages model
9 10 11 12 13 14 15 16 17	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium price, a new price that they believe or a new value that they believe the security is worth. I would do the same thing. As pieces of information change, I would assess through estimation and valuation	8 9 10 11 12 13 14 15 16	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also with some information from the event study. There may be others, but that's what comes to mind now. Q. In connection with your damages
9 10 11 12 13 14 15 16 17	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium price, a new price that they believe or a new value that they believe the security is worth. I would do the same thing. As pieces of information change, I would assess through estimation and valuation tools the impact of that information on the	8 9 10 11 12 13 14 15 16 17	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also with some information from the event study. There may be others, but that's what comes to mind now. Q. In connection with your damages model A. Scenario analysis. Add that to the set of tools.
9 10 11 12 13 14 15 16 17 18	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium price, a new price that they believe or a new value that they believe the security is worth. I would do the same thing. As pieces of information change, I would assess through estimation and valuation tools the impact of that information on the value of the company.	8 9 10 11 12 13 14 15 16 17 18 19	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also with some information from the event study. There may be others, but that's what comes to mind now. Q. In connection with your damages model A. Scenario analysis. Add that to the
9 10 11 12 13 14 15 16 17 18 19 20	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium price, a new price that they believe or a new value that they believe the security is worth. I would do the same thing. As pieces of information change, I would assess through estimation and valuation tools the impact of that information on the value of the company. It's if it's positive news, it	8 9 10 11 12 13 14 15 16 17 18 19 20	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also with some information from the event study. There may be others, but that's what comes to mind now. Q. In connection with your damages model A. Scenario analysis. Add that to the set of tools. Q. Is it fair to say that you would use the loss that was realized on November
9 10 11 12 13 14 15 16 17 18 19 20 21	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium price, a new price that they believe or a new value that they believe the security is worth. I would do the same thing. As pieces of information change, I would assess through estimation and valuation tools the impact of that information on the value of the company. It's if it's positive news, it would have a positive impact. If it's	8 9 10 11 12 13 14 15 16 17 18 19 20 21	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also with some information from the event study. There may be others, but that's what comes to mind now. Q. In connection with your damages model A. Scenario analysis. Add that to the set of tools. Q. Is it fair to say that you would use the loss that was realized on November 20, 2007 to estimate stock price inflation
9 10 11 12 13 14 15 16 17 18 19 20 21 22	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium price, a new price that they believe or a new value that they believe the security is worth. I would do the same thing. As pieces of information change, I would assess through estimation and valuation tools the impact of that information on the value of the company. It's if it's positive news, it would have a positive impact. If it's negative news, it would have a negative	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also with some information from the event study. There may be others, but that's what comes to mind now. Q. In connection with your damages model A. Scenario analysis. Add that to the set of tools. Q. Is it fair to say that you would use the loss that was realized on November
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	they observe what information has changed about the subject security and based on the change in the information for the subject security, they arrive at a new equilibrium price, a new price that they believe or a new value that they believe the security is worth. I would do the same thing. As pieces of information change, I would assess through estimation and valuation tools the impact of that information on the value of the company. It's if it's positive news, it would have a positive impact. If it's	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	set. Q. What are the specific estimation and valuation tools that you just referenced? A. Discount cash flow, valuation multiples, and the literature on effects caused by reputation, liquidity, and also with some information from the event study. There may be others, but that's what comes to mind now. Q. In connection with your damages model A. Scenario analysis. Add that to the set of tools. Q. Is it fair to say that you would use the loss that was realized on November 20, 2007 to estimate stock price inflation at the beginning of the class period?

Page 334 Page 335 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 2 the inflation would be earlier. But I 2 A. I would value the company given a 3 3 wouldn't simply use the drop at the end different set of information, which is 4 as -- unless I -- it's always possible 4 exactly what the other investors would have 5 5 depending on what I find when I delve into done had they been provided with 6 the analysis, but it's not likely that I 6 information. 7 would claim or contend or conclude based on 7 Investors and analysts constantly, 8 the data and evidence that the inflation at 8 continuously update their assessments of 9 9 the value of many securities based on the end was exactly the same as the 10 10 inflation at the beginning. It likely changing information. 11 11 I would do the exact same thing, if changed over time. 12 Q. And how would you determine how it 12 I were the damage expert, to calculate how 13 13 changed over time? the changing information set affects my A. I would look at other companies. 14 14 estimate of the value of the company, There's a number of tools. It's an Freddie Mac. 15 15 16 evaluation exercise. 16 Q. Would your valuation be based in 17 Just like other analysts and 17 part on the damage -- on the event study 18 investors update their valuation of a 18 you conducted with respect to 19 company based on new information, I would 19 November 20, 2007? 20 look at the flow of information over the 20 A. I wouldn't ignore that. I would 21 course of the class period and update the 21 certainly take it into account. 22 but-for valuation the same way. 22 Q. Now, knowing Freddie Mac's true Q. The same way as what? 23 23 subprime exposure in 2007, to the extent 24 A. As other analysts and investors. 24 that it's a true subprime exposure, is it 25 O. And --25 possible that some investors would not have Page 336 Page 337 Steven P, Feinstein, Ph.D 1 1 Steven P, Feinstein, Ph.D 2 purchased shares in Freddie Mac? 2 not have purchased shares and investors 3 A. I think it's certainly possible. 3 that would have purchased shares but at a 4 4 It's not part of my damage model, except to lower price? 5 the extent that had some investors shied 5 A. It's not a model. It's not a 6 6 away from it, the price probably would have transaction causation model. It's a model 7 been less for that reason alone. I mean, 7 that doesn't seek to speculate as to who 8 8 for that reason, which is... wouldn't have bought. 9 O. Is it --9 It's a model that calculates, for 10 A. In concert with other reasons. 10 everyone who did buy, how much they overpaid and how much they lost as a result 11 O. Is it possible that some investors 11 12 before would have been willing to purchase 12 of over paying. shares but only at a lower price? 13 13 Q. Would you agree that US housing A. It's certainly possible, but that's prices declined significantly during the 14 14 15 not the basis of the proposed damage model. 15 proposed class period? 16 Q. Is it --16 A. Yes. That's my understanding of the 17 17 A. The basis of the proposed damage data. 18 18 model is the inflation. Without Q. Are you aware of any other times 19 speculating as to who would have bought and 19 where the US housing prices have declined 20 20 who wouldn't have bought, we can conclude to this degree? 21 that the price that people paid was 21 A. No. inflated, was too high, if, in fact, that's Q. Fair to say the US housing market 22 22 23 what the data show. 23 decline during this period was 24 Q. So your damages model doesn't 24 unprecedented? 25 distinguish between investors that would 25 A. You know, there are -- I don't like

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	to make blanket statements like that. I	2	underwriting is to provide safety features
3	know that certain regions during certain	3	to insulate the mortgage loan portfolios
4	periods had similar declines.	4	from declining real estate values.
5	It's so I don't want to say it's	5	Q. Would you agree that mortgage
6	unprecedented. I know that Texas in the	6	defaults increased significantly during the
7	1980s was a difficult housing market.	7	proposed class period generally?
8	But nationwide, people consider this	8	A. If you look across all classes, yes.
9	period extraordinary in the history of real	9	Q. All classes what classes are you
10	estate prices. And it's been as a	10	referring to?
11	result, it's there's quite a literature	11	A. Prime versus subprime, prime sub,
12	that I could rely on, too, about the impact	12	Alt-A, subprime.
13	of the housing market decline on	13	Q. All different kinds of loans
14	valuations.	14	experienced significantly greater mortgage
15	Q. What typically happens to mortgage	15	defaults during the proposed class period,
16	loan portfolios when real estate prices	16	to your knowledge?
17	decline?	17	A. Well, some more than others. The
18	A. You mean in terms of are they worth	18	whole idea of underwriting and scoring
19	more or less?	19	loans is to categorize the loans according
20	Q. Yes.	20	to credit quality. And the higher credit
21	A. Well, they're worth less, generally,	21	quality loans don't default as much as the
22	typically. But the amount that they're	22	lower credit quality loans. There's data
23	worth less depends on the quality of the	23	and statistics on that. There's studies
24	credit quality of those loans.	24	there are intensive studies out there on
25	I mean, the whole purpose of	25	that.
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Q. Well, putting aside the difference	2	didn't.
3	in performance between classes, it's your	3	Q. Did market regulators?
4	understanding that all classes of loans had	4	A. I would have to review that. I'd
5	significantly increased mortgage defaults	5	rather not speak for them.
6	during the proposed class period, correct?	6	Q. If the court were to conclude that a
7	A. It's my understanding, yes.	7	particular corrective disclosure day for
8	Q. And those defaults, they increased	8	example, November 20, 2007 contained
9	over the course of the class period, right?	9	confounding news, how would an event study
10	A. Right.	10	analysis disentangle the effects of
11	Q. Would you agree that rising mortgage	11	multiple pieces of news released at the
12	defaults was a significant contributing	12	same time?
13	factor to the liquidity crisis in August of	13	A. Well, the event study analysis
14	2007?	14	doesn't do that. The evaluation analysis
15	A. It was a factor. You mean,	15	would be applied to do that.
16	systemically?	16	Q. And how does the evaluation analysis
17	Q. Yes.	17	do that?
18	A. Nationwide. Yes.	18	A. Well, the event study tells you the
19 20	Q. In your view, did market	19 20	aggregate effect of all of the news. To
21	participants anticipate the degree of	21	see what the major contributing factors
22	losses in the mortgage market during this	22	were, one has to see what was the negative
23	period of time? A. Some did.	23	news, which news was expected, which news was unexpected; and of the news that was
23 24	Q. Some did.	23	unexpected, what typically, you know, how
∠ ¬	Q. Bullic did.	47	unexpected, what typically, you know, now
25	A. There are famous examples, and many	25	does it fit into a valuation model? Once

Page 342 Page 343 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 we know how it fits into a valuation model, Q. Do you see where you wrote, "Second, 3 3 we can weigh and value each piece of news an inflation ribbon would be constructed 4 and, therefore, disaggregate the pieces. 4 for the stock using generally accepted 5 5 It's not easy, but it can be done. empirical analysis and valuation tools"? 6 6 Q. In order to do it, would it require A. Yes. 7 7 your personal judgment and estimate? Q. How do you propose to construct the 8 8 inflation ribbon for each day of the class A. Valuation requires judgment and some 9 level of subjectivity, because ultimately, 9 period? 10 10 when you get to the heart of it, valuation A. Again, it depends on what I find in 11 11 is an estimation of what one fully informed the information, but I have at my disposal 12 market participant would pay another fully 12 the entire array of valuation tools. 13 13 informed market participant for security. Valuation tools are designed for 14 You're estimating what two human beings 14 specifically that purpose, determining what would do. 15 a security is worth under a particular 15 16 information set. That's what the field of 16 So there's definitely a human and 17 17 subjective element in valuation. I have to valuation is about. 18 18 anticipate what other market participants I would apply the principles and 19 tools from the field valuation to that 19 would have done. Q. Now let me turn your attention back 20 20 task. 21 to your report. I believe it's marked as 21 Until I actually execute the 22 Exhibit 96. 22 valuation, I couldn't tell you exactly A. What page? 23 23 which tool I would use for each component, Q. Page 42, Paragraph 152, Roman II. 2.4 24 but I would have at my disposal all the 25 A. Okay. 25 tools available, all the tools that the Page 344 Page 345 Steven P, Feinstein, Ph.D 1 1 Steven P, Feinstein, Ph.D. 2 field provides. 2 determined at this point which one is. 3 Q. As you sit here today, you just have 3 Q. What are the factors that would 4 4 not chosen which tools you would use? determine which approach would be more 5 5 A. Well, I anticipate that I would make appropriate than the other? 6 6 use of the event study, and, I would make A. Generally, the percentage inflation 7 use of the models that are in the analysts' 7 ribbon is compelled by an observation that 8 8 reports. And my recollection is they use the misrepresentations and omissions were 9 the standard tools, which are discounted 9 about the viability and forward-looking 10 10 cash flow and valuation multiples. profitability of the entire company. 11 11 I also know from other cases that I Whereas, a dollar inflation ribbon 12 would probably use published research that 12 is compelled by facts and circumstances 13 13 studies the impact of changing reputation that indicate that the alleged misrepresentations and omissions are about 14 effects and liquidity effects. 14 15 Q. Are you familiar with the difference 15 the valuation of a particular asset that's 16 between a constant dollar inflation band 16 owned by the company. 17 In this case, it's not clear yet 17 and a constant percentage inflation band? 18 18 A. Yes. which -- I have to do more investigation to 19 19 choose one, because there seems to be Q. And which would you propose to use? 20 20 A. I'm not sure yet. But I would make elements of both, and I would have to pick that decision when analyzing the facts and 21 21 one or the other. 22 22 circumstances and executing the damage Generally, the dollar ribbon is the 23 23 more conservative ribbon that gives the calculation. 24 One of those will be more 24 lower damages. And sometimes when it's 25 25 appropriate than the other, but I haven't unclear which is the better way, I pick the

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	more conservative. So that's another	2	So any time you use percentage,
3	consideration I would incorporate, which if	3	you're necessarily using a combination of
4	it's a difficult choice and/or a choice	4	percentage and a Dura cap analysis.
5	that's difficult, maybe it's the right	5	Q. Well, I'm not sure that I understand
6	choice but difficult to explain and	6	the answer to my question.
7	articulate and defend, I might choose the	7	Is there any case in which you have
8	more conservative. I haven't decided	8	used another method besides the constant
9	yet.	9	inflation band approach?
10	Q. Is a constant inflation band	10	A. Well, I think by constant inflation,
11	approach the approach that you typically	11	you mean constant dollar. Or we really
12	use in securities cases?	12	shouldn't even call it constant dollar,
13	A. More often than the percentage.	13	because we don't hold the dollars constant.
14	Constant dollar is used more often than the	14	We measure the inflation through time in
15	constant percentage.	15	dollar terms rather than percentage terms.
16	Q. Is there any case in which you have	16	But I have used and the
17	used another method, another securities	17	alternative to that is the percentage
18	case?	18	inflation ribbon.
19	A. Besides percentage and dollar?	19	I've used both. I use dollar more
20	Q. Yes.	20	than percentage. But I use I've used
21	A. Well, when I use percentage, I also	21	both.
22	have a another column in the damage	22	But what I was trying to explain is
23	calculation exhibit that keeps track of	23	that when you use that I don't even
24	inflation dissipation that's not	24	nowadays, because of the Dura case
25	recoverable because of the Dura cap.	25	decision, it's not every every inflation
	recoverable because of the Bara cap.		decision, it's not every every innation
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	ribbon is somewhat of a hybrid that also	2	But it's more consistent. It's the
3	takes into account dissipated inflation	3	appropriate choice of methodology, given
4	that's not recoverable.	4	the facts of the case.
5	So it's not even just dollar	5	Q. Now let's take both now in that
6	inflation or percent inflation, it's dollar	6	`
	and/or percent inflation minus		case, you're saying that you didn't use
7	and of percent inflation inflats	7	case, you're saying that you didn't use constant dollar, you used constant
7 8		7 8	constant dollar, you used constant
	unrecoverable Dura cap inflation.		
8	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of	8	constant dollar, you used constant percentage; is that right? A. I don't want to use the word
8 9	unrecoverable Dura cap inflation.	8 9	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a
8 9 10	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a	8 9 10	constant dollar, you used constant percentage; is that right? A. I don't want to use the word
8 9 10 11	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method	8 9 10 11	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon.
8 9 10 11 12	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable?	8 9 10 11 12	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set
8 9 10 11 12 13	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable? A. Yes, of course. Constant dollar.	8 9 10 11 12 13	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set of facts or allegations that would make a
8 9 10 11 12 13 14	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable? A. Yes, of course. Constant dollar. Q. Let's take it in pieces.	8 9 10 11 12 13 14	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set of facts or allegations that would make a constant dollar or a percentage ribbon
8 9 10 11 12 13 14 15	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable? A. Yes, of course. Constant dollar. Q. Let's take it in pieces. Let's first let's do constant	8 9 10 11 12 13 14 15	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set of facts or allegations that would make a constant dollar or a percentage ribbon method inapplicable? A. By "inapplicable," you mean
8 9 10 11 12 13 14 15 16	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable? A. Yes, of course. Constant dollar. Q. Let's take it in pieces. Let's first let's do constant dollar, since that's what you gravitate	8 9 10 11 12 13 14 15 16	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set of facts or allegations that would make a constant dollar or a percentage ribbon method inapplicable? A. By "inapplicable," you mean inappropriate?
8 9 10 11 12 13 14 15 16 17	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable? A. Yes, of course. Constant dollar. Q. Let's take it in pieces. Let's first let's do constant dollar, since that's what you gravitate toward.	8 9 10 11 12 13 14 15 16 17	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set of facts or allegations that would make a constant dollar or a percentage ribbon method inapplicable? A. By "inapplicable," you mean inappropriate? Q. Inappropriate.
8 9 10 11 12 13 14 15 16 17	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable? A. Yes, of course. Constant dollar. Q. Let's take it in pieces. Let's first let's do constant dollar, since that's what you gravitate toward. Have you ever encountered an	8 9 10 11 12 13 14 15 16 17	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set of facts or allegations that would make a constant dollar or a percentage ribbon method inapplicable? A. By "inapplicable," you mean inappropriate?
8 9 10 11 12 13 14 15 16 17 18 19	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable? A. Yes, of course. Constant dollar. Q. Let's take it in pieces. Let's first let's do constant dollar, since that's what you gravitate toward. Have you ever encountered an instance or a set of allegations or facts	8 9 10 11 12 13 14 15 16 17 18 19	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set of facts or allegations that would make a constant dollar or a percentage ribbon method inapplicable? A. By "inapplicable," you mean inappropriate? Q. Inappropriate. A. Or impossible?
8 9 10 11 12 13 14 15 16 17 18 19 20	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable? A. Yes, of course. Constant dollar. Q. Let's take it in pieces. Let's first let's do constant dollar, since that's what you gravitate toward. Have you ever encountered an instance or a set of allegations or facts that would make a constant dollar method	8 9 10 11 12 13 14 15 16 17 18 19 20	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set of facts or allegations that would make a constant dollar or a percentage ribbon method inapplicable? A. By "inapplicable," you mean inappropriate? Q. Inappropriate. A. Or impossible? Q. Well, we'll take them in turn.
8 9 10 11 12 13 14 15 16 17 18 19 20 21	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable? A. Yes, of course. Constant dollar. Q. Let's take it in pieces. Let's first let's do constant dollar, since that's what you gravitate toward. Have you ever encountered an instance or a set of allegations or facts that would make a constant dollar method inapplicable?	8 9 10 11 12 13 14 15 16 17 18 19 20 21	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set of facts or allegations that would make a constant dollar or a percentage ribbon method inapplicable? A. By "inapplicable," you mean inappropriate? Q. Inappropriate. A. Or impossible? Q. Well, we'll take them in turn. Let's start first with impossible.
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable? A. Yes, of course. Constant dollar. Q. Let's take it in pieces. Let's first let's do constant dollar, since that's what you gravitate toward. Have you ever encountered an instance or a set of allegations or facts that would make a constant dollar method inapplicable? A. Well, I've encountered facts in	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set of facts or allegations that would make a constant dollar or a percentage ribbon method inapplicable? A. By "inapplicable," you mean inappropriate? Q. Inappropriate. A. Or impossible? Q. Well, we'll take them in turn. Let's start first with impossible. A. No.
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	unrecoverable Dura cap inflation. Q. Have you ever encountered any set of allegations or facts that would make a constant inflation band method inapplicable? A. Yes, of course. Constant dollar. Q. Let's take it in pieces. Let's first let's do constant dollar, since that's what you gravitate toward. Have you ever encountered an instance or a set of allegations or facts that would make a constant dollar method inapplicable? A. Well, I've encountered facts in cases where the percentage ribbon is the	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	constant dollar, you used constant percentage; is that right? A. I don't want to use the word "constant," but I used a percentage, a percentage inflation ribbon. Q. Now, have you ever encountered a set of facts or allegations that would make a constant dollar or a percentage ribbon method inapplicable? A. By "inapplicable," you mean inappropriate? Q. Inappropriate. A. Or impossible? Q. Well, we'll take them in turn. Let's start first with impossible. A. No. Q. No?

Page 350 Page 351 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 to be material based on valuation A. Yes. 3 3 Q. Okay. And in that case or those principles or an assessment of what 4 cases, how would or did you calculate 4 analysts and other investors are saying 5 5 damages on a class-wide basis? about the stock -- I mean, if they're 6 A. I would have to look at those 6 deemed -- if material facts keep 7 7 reports to see the analysis that I did. changing -- keep changing the value of the 8 8 It's much more intricate than a market company and if in the but-for world the set 9 9 efficiency analysis. of facts keeps changing, it would be 10 10 I take -- essentially, it's a necessary to update the but-for price repeated, an iterative valuation exercise 11 frequently. 11 12 to revalue the stock, taking in account 12 Q. So it may be that you use a dollar 13 13 changing information over the course of the inflation band approach or a percentage 14 class period, and then comparing that 14 inflation band approach or some other but-for price to the actual price that 15 15 approach to this case; is that fair? 16 16 prevailed in the marketplace on each day in A. No. It's -- it's generally one or 17 17 the other. the class period. 18 18 Q. And do you expect that you might use The question that I was answering is 19 that method in this case? 19 would it require continuous updating of the 20 20 A. It's possible. but-for price, and it may or may not, 21 Q. What are the facts that would give 21 depending on how frequently the set of 22 rise to you using such an approach? 22 relevant information changed. A. If the -- okay. If the facts were 23 23 I mean, analysts -- if you look at 24 changing frequently -- facts that are 24 analysts' reports, they generally don't 25 deemed to be material, that either I deem 25 change their targets every day. They Page 352 Page 353 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 2 change their targets when new, material 2 period, accounting for alleged 3 information comes out that changes their 3 fraud-related residual price declines as 4 4 assessment of the company. they occur." 5 5 So you can use the analysts -- how Do you see that? It's on Page 43. 6 6 frequently analysts update their price A. Right. So that's appropriate for a 7 targets as a standard for how frequently I 7 case where the value of the information at 8 8 might have to update the but-for price. the beginning of the class period is 9 But if it's the case that the 9 similar to the value of the omitted or 10 10 information set is changing so rapidly in misrepresented information at the end of the but-for world, then I would update the 11 the class period, and there's not a lot of 11 12 but-for price more frequently using 12 intervening changing and confounding, 13 non-fraud-related information, then that 13 valuation tools. Q. And here further down in --14 14 approach is called for. 15 A. I just want to say, not that I 15 Q. Now, you have identified at least 16 would, but I may if I deem it to be 16 one structural break in this market during 17 17 appropriate. the class period, correct? 18 18 Q. So in your report, in A. No, that's a structural break 19 Paragraph 152, Subsection 2, you write that 19 referring to the volatility and the 20 20 "The inflation ribbon is often constructed regression parameters. 21 by working chronologically backwards from 21 It's not necessarily a structural 22 22 the final corrected disclosure to the state break with respect to the value of the 23 of the class period." 23 omitted information. 24 A. Start. 24 Q. Is it --25 25 Q. "...to the start of the class A. I would have to check to see if it

Page 354 Page 355 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 1 2 2 But I -- I can tell you this much, I does apply. 3 3 Q. So is it possible that the value of would certainly somehow make use of the 4 4 information that is provided to the the omitted information may change over 5 5 these two different estimation periods that analysts as a result of the corrective 6 6 disclosure. But I would also use valuation you identified in your regression model? 7 7 A. It is possible. tools to see if there needs to be 8 8 Q. And how would you calculate that? adjustments as we move backwards in time 9 A. I would see what other analysts are 9 through the class period. 10 10 saying about the value of information Q. And do you see where you use the before and after that period. 11 expression "final corrective disclosure"? 11 I would see how they changed their 12 12 A. Yes. 13 13 Q. In this case, do you know what the valuations as a result of the changing 14 regime for this company and, perhaps, other 14 final corrective disclosure was, according 15 companies. 15 to plaintiffs? 16 16 Q. Now, specifically with respect to A. According to plaintiffs, what 17 what you wrote about constructing an 17 they're alleging is that it's 18 inflation ribbon by working chronologically 18 November 20th, as of now. 19 backwards ---19 Q. Have you ever determined that you could not measure inflation based on the 20 20 A. Right. 21 Q. -- how, specifically, do you propose 21 price declines caused by corrective 22 to apply that approach to this case? 22 disclosures? 23 23 A. Well, if you're saying that I had A. I haven't decided yet. This is a 24 tool that I could use if it's deemed 24 to -- have I ever determined that that 25 appropriate. 25 information had to be disregarded? No. Page 356 Page 357 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 2 It's always -- it's valuable 2 part, on the price decline you observe in 3 information to consider in one way or 3 connection with corrective disclosures? 4 A. Of course. I would take that 4 another. 5 5 Q. Well, putting aside whether it had information into account. 6 6 to be disregarded, have you ever determined Q. Now, when you say you would take it 7 that you couldn't measure inflation based 7 into account, will you be taking it into 8 on price declines caused by corrective 8 account in terms of an arithmetic 9 disclosures? 9 calculation? Or will you be taking it into 10 10 A. If you mean have I ever account in the sense that it will inform 11 11 determined -- I need to know more precisely your judgment and estimate? 12 12 A. Both. I mean, I don't expect that I what you mean. 13 13 Are you asking has it ever been the would just simply -- it's possible that I case where I observed a price decline, had would, but at this point I don't expect 14 14 15 15 a corrective disclosure, and then concluded that I would simply accept that drop number 16 that the inflation prior to that corrective 16 as being the only relevant factor in the 17 17 disclosure was some amount different from damage calculation, and that -- or that the 18 18 the drop? Is that the question? inflation would necessarily, throughout the 19 Q. That isn't, but I'm curious as to 19 class period, be exactly equal to that 20 20 your answer to that question, too. final drop. 21 A. That question -- the answer to that 21 I don't expect that to be the case. 22 22 It may be. But at this point, I don't question is yes. 23 23 expect it to be. Q. Well, what about -- is it correct to 24 say that the approach you plan to take is 24 But what we can observe when the 25 25 information became available to the to measure inflation based, at least in

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	marketplace, it is important information	2	which ones relate to legally recoverable,
3	for conducting the valuation analysis. I	3	recompensable losses is a separate matter.
4	would make use of it.	4	So I would need instruction from lawyers or
5	Q. What other factors would you	5	the court to that effect.
6	consider?	6	Q. Let me turn your attention to
7	A. The changing value of information	7	Paragraph 157 of your report, on Page 45 of
8	over the course of the class period for	8	Exhibit 96.
9	among others.	9	Do you see where you say that "A
10	Q. What are the others you reference?	10	fundamental principle of financial
11	A. Confounding information, both at the	11	economics is that in an efficient market,
12	time of the disclosure and earlier, and	12	investors are not systematically wrong"?
13	what's ultimately either adjudicated or	13	A. Yes.
14	what I'm instructed to assume about the	14	Q. Does that statement mean that
15	allegations as to which allegations and	15	investors are not wrong on average?
16	information are actionable.	16	A. Yes, in an efficient market.
17	Q. Anything else?	17	Q. In an efficient market investors are
18	A. Possibly. As I sit here now, I	18	wrong are strike that.
19	mean, those are the main things: changing	19	In an efficient market, can
20	value of information, confounding	20	investors be wrong some of the time?
21	information, and some determination as to	21	A. Yes.
22	what allegations are deemed actionable,	22	Q. If investors are wrong some of the
23	that just from a legal perspective.	23	time, how will you account for this in your
24	I mean, I can calculate the	24	damages model?
25	economics of any piece of information, but	25	A. Well, I would apply the best damage
	Page 360		Page 361
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	model available, which is, generally, based	2	nature of the model and the nature of the
3	on the assumption that the market's	3	model that's typically used in a 10b-5
4	well, the reason why the best valuation	4	case, which could be applied here.
5	models are called the best valuation models	5	Q. Well, putting aside whether it needs
6	is that they're models that represent	6	to or not, it doesn't account for differing
7	typical what investors typically use to	7	risk tolerances among investors, right?
8	value stock.	8	A. Right. It's a model that could be
9	So I would use the models that,	9	applied commonly to all investors in the
10	according to the literature, that models	10	class.
11	considered to best represent how investors	11	Q. Do you agree that there are risks
12	value stocks, which would be that they	12	presented by loans to borrowers with lower
13	aren't wrong, unless there's some evidence	13	FICO scores?
14	to the contrary.	14	A. Yes.
15 16	Q. Is it fair to say that not all	15	Q. Do you agree that the risks
16 17	investors have the same risk tolerance?	16 17	presented by loans strike that.
18	A. Oh, that's fair.Q. Is there any way to test for this?	18	(Exhibit No. 109 marked for
19	A. There is. It would be irrelevant to	19	identification.)
20	this case. But there's a way to test. The	20	identification.)
21	literature has tests for risk tolerance.	21	BY MR. FRANK:
22	Q. Your proposed model doesn't account	22	Q. I'm going to show you an exhibit
23	for differing risk tolerance among	23	that has been marked as 109.
24	investors; fair to say?	24	What is Exhibit 109?
25	A. It doesn't need to because of the	25	A. This is one of those NERA

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	manuscripts written by David Tabak.	2	correct?
3	Q. And you've cited this manuscript by	3	A. Well, we've talked about that
4	Dr. Tabak in your work, correct?	4	before. He gets credit for being a
5	A. Did I cite it in this one? In this	5	co-author of the first paper on it.
6	case?	6	I think the word "authority" might
7	Q. Well, if you would like, let me turn	7	have some legal connotation that I'm
8	your attention to Exhibit 95, which is your	8	reluctant to agree to at this point.
9	declaration.	9	Q. Nevertheless, you have cited him in
10	A. Okay.	10	connection with your work on event studies
11	Yes, it's there on Page 6. Okay.	11	and z-tests, correct?
12	Q. And so you cited this manuscript in	12	A. Right. And I've met him, and I've
13	this case in your declaration, right?	13	talked to him. I agree with a lot of
14	A. Yes.	14	things he says and disagree with a lot of
15	Q. And you've cited it in your work in	15	other things he says.
16	other cases, right?	16	The things I agree with, I've
17	A. Yes.	17	where we reach common agreement, I point
18	Q. Please turn to Page 2 of the	18	that out as being valuable information.
19	manuscript.	19	Q. Do you see his the section of the
20	A. Okay.	20	manuscript entitled "The
21	Q. And this is Dr. Tabak, who is also	21	Proof-by-Example Approach"
22	the same Dr. Tabak who co-authored the FDT	22	A. Yes.
23	article, right?	23	Q. And do you see he says, "Following
24	A. Right.	24	Cammer, there has been an evolving history
25	Q. He's an authority on the FDT z-test,	25	of how experts and lawyers presented
			Page 365
1		1	Page 365
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D empirical facts that might have been deemed	2	Steven P, Feinstein, Ph.D A. I know that some people have done
2 3	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship	2 3	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this
2 3 4	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements."	2 3 4	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward
2 3 4 5	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that?	2 3 4 5	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study.
2 3 4 5 6	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that? A. Yes.	2 3 4 5 6	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study. And I know that the expert in
2 3 4 5 6 7	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that? A. Yes. Q. And he further writes "An initially	2 3 4 5 6 7	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study. And I know that the expert in PolyMedica, that he criticizes here or
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that? A. Yes. Q. And he further writes "An initially popular approach might be termed proof by	2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study. And I know that the expert in PolyMedica, that he criticizes here or points out that the court criticized, used
2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that? A. Yes. Q. And he further writes "An initially popular approach might be termed proof by example. In this method, an expert or	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study. And I know that the expert in PolyMedica, that he criticizes here or points out that the court criticized, used a backward event study, and it's the
2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that? A. Yes. Q. And he further writes "An initially popular approach might be termed proof by example. In this method, an expert or counsel for plaintiffs would present a	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study. And I know that the expert in PolyMedica, that he criticizes here or points out that the court criticized, used a backward event study, and it's the backward event study that is what he means
2 3 4 5 6 7 8 9 10	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that? A. Yes. Q. And he further writes "An initially popular approach might be termed proof by example. In this method, an expert or counsel for plaintiffs would present a handful of days with news followed by a	2 3 4 5 6 7 8 9 10	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study. And I know that the expert in PolyMedica, that he criticizes here or points out that the court criticized, used a backward event study, and it's the backward event study that is what he means by proof by example.
2 3 4 5 6 7 8 9 10 11	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that? A. Yes. Q. And he further writes "An initially popular approach might be termed proof by example. In this method, an expert or counsel for plaintiffs would present a handful of days with news followed by a stock price movement."	2 3 4 5 6 7 8 9 10 11	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study. And I know that the expert in PolyMedica, that he criticizes here or points out that the court criticized, used a backward event study, and it's the backward event study that is what he means by proof by example. Q. What is a backward event study?
2 3 4 5 6 7 8 9 10 11 12 13	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that? A. Yes. Q. And he further writes "An initially popular approach might be termed proof by example. In this method, an expert or counsel for plaintiffs would present a handful of days with news followed by a stock price movement." Do you see that?	2 3 4 5 6 7 8 9 10 11 12 13	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study. And I know that the expert in PolyMedica, that he criticizes here or points out that the court criticized, used a backward event study, and it's the backward event study that is what he means by proof by example. Q. What is a backward event study? A. Backward event study is where you
2 3 4 5 6 7 8 9 10 11 12 13 14	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that? A. Yes. Q. And he further writes "An initially popular approach might be termed proof by example. In this method, an expert or counsel for plaintiffs would present a handful of days with news followed by a stock price movement." Do you see that? A. Yes.	2 3 4 5 6 7 8 9 10 11 12 13 14	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study. And I know that the expert in PolyMedica, that he criticizes here or points out that the court criticized, used a backward event study, and it's the backward event study that is what he means by proof by example. Q. What is a backward event study? A. Backward event study is where you first look at the data you first look at
2 3 4 5 6 7 8 9 10 11 12 13 14 15	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that? A. Yes. Q. And he further writes "An initially popular approach might be termed proof by example. In this method, an expert or counsel for plaintiffs would present a handful of days with news followed by a stock price movement." Do you see that? A. Yes. Q. Did I read that correctly?	2 3 4 5 6 7 8 9 10 11 12 13 14 15	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study. And I know that the expert in PolyMedica, that he criticizes here or points out that the court criticized, used a backward event study, and it's the backward event study that is what he means by proof by example. Q. What is a backward event study? A. Backward event study is where you first look at the data you first look at the regression results to identify which
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D empirical facts that might have been deemed to show a cause-and-effect relationship between news and stock price movements." Do you see that? A. Yes. Q. And he further writes "An initially popular approach might be termed proof by example. In this method, an expert or counsel for plaintiffs would present a handful of days with news followed by a stock price movement." Do you see that? A. Yes. Q. Did I read that correctly? A. Yes. I don't think you understand it correctly, but I think you see it correctly. Q. Have I shared with you my understanding of it? A. I am anticipating where you're going with it, but let's see.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Steven P, Feinstein, Ph.D A. I know that some people have done backward event studies, which is what this is about, and I've never done a backward event study. And I know that the expert in PolyMedica, that he criticizes here or points out that the court criticized, used a backward event study, and it's the backward event study that is what he means by proof by example. Q. What is a backward event study? A. Backward event study is where you first look at the data you first look at the regression results to identify which dates are statistically significant in the in a time series of residual returns. And then on the basis of certain days being statistically significant, pick those days to bring to the court's attention and say that these are these days were statistically significant, and

Page 366 Page 367 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D 1 1 2 2 Q. You believe that Dr. Tabak is that the significant drop or rise in the 3 3 stock price was a result of the identified identifying here a problem with first 4 4 news that was identified only after one identifying statistically significant days 5 5 observed the statistically significant and only second identifying news associated 6 6 with those days? stock price movement. 7 7 And it's an improper analytical A. Yes. 8 8 approach because we know that 5 percent, Q. Is that right? 9 9 A. Yes, and because he cites the roughly, of all residual stock returns will 10 10 be statistically significant, spuriously PolyMedica case, and that's what the 11 11 so, just because of the nature of problem was with the expert in the 12 statistical significance and what it really 12 PolyMedica case. 13 13 Q. You believe that the better way to means by design. 14 14 And so you cannot conclude from this conduct an event study is to not know what 15 methodology -- from that backward 15 days are statistically significant but, 16 methodology that information caused the 16 rather, identify days based solely on an 17 17 assessment of news; is that correct? stock price to move. 18 18 That's what was done in PolyMedica. A. Well, that would be a better way to 19 That's what the court rebutted in 19 do it. But if you already do know what the 20 PolyMedica. Not just that it was only five 20 statistically significant result is, you 21 days, but that the five days were picked on 21 better have a very compelling -- you better 22 22 have very compelling facts to support the the basis of them being statistically 23 23 significant, not on the basis of there selection of that date on the basis of news 24 having been important news that transpired 24 alone, not on the basis of it being 25 on those days. 25 statistically significant, which is what I Page 368 Page 369 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D. where it's elaborated upon, this 2 did in this case. 2 3 I mean, I would not have picked that 3 methodology that is rebutted, refuted. 4 4 day -- I did not pick November 20th as the He's talking about simply pointing 5 5 subject of the event study because it was a out a handful of examples where it appears 6 6 statistically significant day. I picked it that there were stock price movements that 7 because it was indisputably a red-letter 7 were large. 8 8 important information date in the life of Well, that methodology is legitimate 9 9 this company. if the proper event study methodology is 10 10 Q. Well, in addition, as you testified followed, but it's not legitimate if the 11 11 earlier, you were unable to find a single backward event study is followed. 12 12 other day among all the other 329 days that Q. Do you see where he writes, "A you thought were appropriate for testing; 13 13 serious and, in fact, fatal problem with 14 is that right? 14 the approach is that one would expect to 15 A. That were ideal candidates, right. 15 see such results if stock price movements 16 That's the case. 16 were completely random and had no average 17 17 So that's also why it was restricted correlation with news events"? 18 18 to a single event, but also why the Do you see that? 19 collective event test was motivated. 19 A. That's only a true statement in a 20 20 Q. Now, Dr. Tabak here does not mention backward event study. It's not a true 21 anything about selecting dates on the basis 21 statement if the event study is run 22 of previously knowing their statistically 22 appropriately. 23 significant results, does he? 23 Q. Why is it not true if the event 24 A. That's what he -- I mean, he's 24 study is run appropriately? 25 25 referring to the PolyMedica case. That's A. Because if the event study is run

Page 370 Page 371 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 appropriately and you first identify the 2 reverse -- backward event studies. 3 3 dates to test because of the news and then Q. Have you ever talked to Dr. Tabak 4 observe that the stock price did move, the 4 about this issue? 5 5 inescapable conclusion is that you've A. I think in the course of -- in the 6 established, you've demonstrated that the 6 context of litigation, where we both served 7 price reacts to news. 7 as experts, we've communicated, you know, 8 8 If, on the other hand, you pick the via our reports. 9 dates because the stock price moved and 9 But no. I haven't had a discussion then look for some news, after the fact, 10 10 with him about that. 11 that may or may not be relevant, then you 11 Q. Your interpretation of this section 12 have that serious problem, because that's 12 is that it's solely an attack on -- what what could happen. 13 13 was the expression that you used? 14 And under that approach, one would 14 A. Backward event studies. 15 expect to see such results if stock price 15 O. -- backward event studies; is that movements were completely random and had no 16 16 correct? 17 average correlation with news events. 17 A. Right. Because it's not the case You will not see significant event 18 18 with forward, correctly run event studies study results when stock price movements 19 19 that you will see examples of statistically 20 20 are completely random and have no average significant results, statistically 21 correlation with news events if the event 21 significant price movements on 22 study is run appropriately in the forward 22 information -- on big information dates 23 direction rather than the reverse 23 when stock price movements are completely 24 direction 24 random and have no average correlation with 25 So he must be referring to 25 news events. That's just not the case. Page 372 Page 373 1 1 Steven P, Feinstein, Ph.D Steven P, Feinstein, Ph.D. 2 It's only the case, as I said 2 Q. Now, just to be clear, if you were 3 before, with reverse event studies, 3 to discover that your z-test was flawed and 4 4 backwards event studies. that it did not result in statistically 5 5 Q. And accordingly, you think that it significant results, would you change your 6 6 opinion in this case that Freddie Mac's is appropriate, so long as an event study 7 is constructed correctly, to prove market 7 common stock traded in an efficient market? 8 8 efficiency by using only a few, or in this A. I would have to see why it was 9 case, one example; is that correct? 9 thought to be flawed. I would have to know 10 10 A. Well, we talked about this earlier. that first. I would have to see what I 11 potentially got wrong. 11 No, that's not what I testified to. 12 What I said was that these empirical 12 Q. Well ---13 A. I would certainly consider it. It 13 results, in concert with the Cammer and could change my opinion. 14 Unger test results, proves to a high degree 14 15 I mean, I'm a scientist. I'm going 15 of statistical and professional certainty 16 market efficiency. 16 to take into account information and Proof, but to a lesser degree, is 17 17 evidence and data. 18 I won't disregard it, but I also 18 offered only by the test, but it is to a 19 lesser degree. And that's -- and I'm 19 will weight that evidence and data 20 20 not -- that's not my opinion in this case. appropriately. I want to know why it's 21 I'm not drawing my conclusion on the basis 21 thought to be flawed. 22 22 of that test alone. I'm offering my If it's thought to be flawed because 23 opinion on the basis of that test in 23 it doesn't conform to one textbooks's menu 24 concert with the other evidence, the Cammer 24 of conditions when, in fact, the literature 25 25 and Unger results. says that it doesn't have to conform to one

	Page 374		Page 375
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	textbook's menu of conditions if other	2	four and six through eight and solely based
3	diagnostics are satisfied, I would give it	3	on your single-event event study that
4	less weight, you know, the conflicting	4	Freddie Mac's common stock traded in an
5	evidence less weight.	5	efficient market?
6	If, on the other hand, I'm convinced	6	A. I would rather wait and see what the
7	that I didn't do it correctly and that the	7	compelling evidence is.
8	results indicate something opposite, I	8	I can tell you that during a break,
9	would take that into account and revise my	9	I examined the binomial probability of
10	opinion appropriately.	10	having three out of eight significant
11	But at this point, I don't see that	11	events when, in fact, the dynamics under
12	it's likely.	12	the null hypothesis of news events and
13	Q. Well, assume for the sake of this	13	non-news events having the same dynamics,
14	question that you conclude that the test	14	and it only came out to 0.5 percent, and
15	was flawed. You conclude you've become	15	that's a test that's not subject to the
16	convinced the z-test just isn't supposed to	16 17	same constraints or potential criticisms as
17 18	be run on a sample size that small regardless of what diagnostic tests are	18	the z-test.
19	done thereafter.	19	I mean, it's, essentially, as we talked about, before diagnostic.
20	If you yourself reach that	20	0.5 percent is far below the 5
21	conclusion and, therefore, the z-test, you	21	percent cutoff for reasonably rejecting the
22	weren't relying upon it anymore, do you	22	null hypothesis.
23	believe that you would maintain your	23	So that just gives me more
24	opinion solely based on your analysis of	24	confidence that I did it right and the
25	the Cammer and Krogman factors one through	25	diagnostic supports my use of the z-test,
			,
	Page 376		5 000
	Tage 370		Page 377
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D but I will	2	Steven P, Feinstein, Ph.D you proceeded; is that right?
2	Steven P, Feinstein, Ph.D but I will Q. Perhaps you don't understand my	2	Steven P, Feinstein, Ph.D you proceeded; is that right? A. That's right.
2 3 4	Steven P, Feinstein, Ph.D but I will Q. Perhaps you don't understand my hypothetical	2 3 4	Steven P, Feinstein, Ph.D you proceeded; is that right? A. That's right. Q. And that was before you even did the
2 3 4 5	Steven P, Feinstein, Ph.D but I will Q. Perhaps you don't understand my hypothetical A but if I'm confronted with	2 3 4 5	Steven P, Feinstein, Ph.D you proceeded; is that right? A. That's right. Q. And that was before you even did the z-test, right?
2 3 4 5 6	Steven P, Feinstein, Ph.D but I will Q. Perhaps you don't understand my hypothetical A but if I'm confronted with compelling evidence that my analysis is	2 3 4 5 6	Steven P, Feinstein, Ph.D you proceeded; is that right? A. That's right. Q. And that was before you even did the z-test, right? A. That's right. That's right.
2 3 4 5 6 7	Steven P, Feinstein, Ph.D but I will Q. Perhaps you don't understand my hypothetical A but if I'm confronted with compelling evidence that my analysis is wrong, I very well may change my opinion.	2 3 4 5 6 7	Steven P, Feinstein, Ph.D you proceeded; is that right? A. That's right. Q. And that was before you even did the z-test, right? A. That's right. That's right. Q. Before you did the z-test, were you
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D but I will Q. Perhaps you don't understand my hypothetical A but if I'm confronted with compelling evidence that my analysis is wrong, I very well may change my opinion. Q. Well, I'm just trying to understand	2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D you proceeded; is that right? A. That's right. Q. And that was before you even did the z-test, right? A. That's right. That's right. Q. Before you did the z-test, were you comfortable concluding that you had
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D but I will Q. Perhaps you don't understand my hypothetical A but if I'm confronted with compelling evidence that my analysis is wrong, I very well may change my opinion. Q. Well, I'm just trying to understand what, from your perspective, is sufficient evidence to establish market efficiency. So I think you're struggling with the underlying arguments here and maybe if we do it chronologically, it would be easier. You examined the Cammer factors one through four, correct? A. Right. Q. And you did the Krogman factors six through eight, correct? A. Right. Q. And the first thing you did in terms of factor five was you did your single-event event study, correct?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Steven P, Feinstein, Ph.D you proceeded; is that right? A. That's right. Q. And that was before you even did the z-test, right? A. That's right. That's right. Q. Before you did the z-test, were you comfortable concluding that you had sufficient economic evidence to opine that Freddie Mac's common stock traded in an efficient market? A. To a lesser degree of confidence and for a more limited period of time. I mean, if you're looking at that point in isolation without any other test being considered. That's what we talked about earlier when we looked at the paragraph where I said that that result offered proof. Q. And what was the period of time that you felt comfortable opining upon at that time? A. Well, if you look at that paragraph,

	Page 378		Page 379
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	It says that it's proof of market	2	enough for you to opine that Freddie Mac's
3	efficiency, which it is, for that day and	3	common stock traded in an efficient
4	reasonably for some period of time around	4	market?
5	that day.	5	A. *You're right. I just don't see the
6	In concert with the other factors	6	
		7	point of pondering the hypothetical.
7	and the other tests, I can extrapolate and		That's not happened. It's not what's
8	deduce that the market for Freddie Mac	8	relevant to my opinion. Maybe it's
9	stock was efficient throughout the class	9	relevant to your cross-examination and
10	period.	10	potential criticism of my opinion.
11	But based on that one test, my	11	But from my perspective, I didn't
12	opinion stands as how I expressed it.	12	have to ponder that hypothetical because I
13	Q. Now, this is going to be hard for	13	had this abundance of evidence that all
14	you because now we're going to deal with a	14	pointed in the direction of market
15	hypothetical that isn't the real world.	15	efficiency.
16	A. Okay.	16	MR. FRANK: Let's take a brief
17	Q. Assume that you hadn't done the	17	break here, and then we'll wrap up.
18	single-event event study.	18	MR. MARKOVITS: Great.
19	A. Okay.	19	THE VIDEOGRAPHER: We are
20	Q. *All you've got is the Cammer,	20	going off the record at 5:19.
21	Krogman factors, and on factor five, all	21	
22	you've got is the z-test but not your	22	(Recess taken from 5:19 p.m.
23	single-event event study.	23	to 5:33 p.m.)
24	A. *Okay.	24	to close plant)
25	Q. *In your view, would that have been	25	THE VIDEOGRAPHER: We are back
	Q. In your view, would that have been		THE VIBBOOK HILDER WO GO SWA
	5 200		
	Page 380		Page 381
1	_	1	-
	Steven P, Feinstein, Ph.D on the record at 5:33.		Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D	1 2 3	Steven P, Feinstein, Ph.D So given that, the empirical tests
	Steven P, Feinstein, Ph.D on the record at 5:33.	2	Steven P, Feinstein, Ph.D So given that, the empirical tests in this case are icing on the cake.
2 3 4	Steven P, Feinstein, Ph.D on the record at 5:33. MR. MARKOVITS: Can I have the	2 3 4	Steven P, Feinstein, Ph.D So given that, the empirical tests in this case are icing on the cake. They're a demonstration of the market
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Page 382 Page 383 1 Steven P, Feinstein, Ph.D 1 Steven P, Feinstein, Ph.D 2 2 that Freddie Mac's common stock traded in Exchange. 3 3 an efficient market? So it -- I wouldn't say it's 100 4 4 percent iron-clad proof without a A. With the standard of confidence or 5 5 standard of proof of it being more likely demonstration, but it certainly satisfies 6 6 than not, yes, it was far more likely than the standard of being far more likely than 7 7 not on the basis of all the Cammer and not based on those Cammer and Krogman 8 8 factors; it is far more likely than not Krogman factors, exclusive of the empirical 9 9 based only on the Cammer and Krogman factor. 10 10 factors, excluding the empirical factor, Q. Are you aware of any academic that Freddie Mac stock trades in an 11 11 literature that supports your view that a 12 efficient market, because generally, 12 market is more likely than not efficient 13 13 inefficient stocks are a rare exception, based solely on the structural Cammer and 14 inefficient markets are a rare exception. 14 Krogman factors, excluding the fifth 15 They become even more rare when you're 15 empirical factor? A. Yes. 16 looking at large companies, even more rare 16 17 17 Q. What academic literature is that? when you're looking at large companies that 18 18 A. It's the Barbara Griffen article. are actively traded, even more rare when 19 it's large companies that are actively 19 They look at -- they find it on the basis 20 20 traded with abundant analyst coverage, and of analysts' coverage and volume. They 21 even more rare if you add in the factor, 21 conclude that those factors distinguish 22 you know, the narrow bid-ask spread -- that 22 efficient from inefficient stocks. 23 23 it has a narrow bid-ask spread, and even Q. And have you ever authored an expert 24 rarer than that if you take into account 24 report in a securities case where you opine 25 that it's listed on the New York Stock 25 that the -- that a company's security Page 384 Page 385 1 1 Steven P, Feinstein, Ph.D. Steven P, Feinstein, Ph.D 2 traded on an efficient market based solely 2 passed, so let me just formulate this new 3 on the structural Cammer-Krogman factors 3 one. 4 4 and not additional empirical testing? You come to conclude that the two 5 5 empirical tests you ran aren't reliable. A. No. Because -- frankly, it's 6 6 because the standard of proof that I need, For one reason or another, you cannot rely 7 I think, exceeds the standard of proof and 7 upon your single-event event study or your 8 8 the quantity of evidence that courts have FDT z-test. 9 explained they need. So, my work tends to 9 Given that set of circumstances, but 10 10 be overkill. all of the other factors staying the same, 11 11 Q. What is the standard of proof that would you personally be willing to offer an 12 12 opinion that Freddie Mac's common stock you need in order to formulate the opinion 13 13 that a security trades in an efficient traded in an efficient market? 14 market? 14 A. I would need to know why -- I would 15 15 A. You said it yourself. I haven't, need to know what that compelling evidence 16 and I wouldn't, author a report concluding 16 was that the tests were flawed. 17 And I would need to know whether the 17 that the stock was efficient if I didn't 18 18 have some demonstration -- some empirical correction of the test simply removed those 19 demonstration of the efficiency. 19 tests as demonstrations of efficiency or 20 20 But in the hypothetical, my became demonstrations of inefficiency. 21 understanding is that the evidence without 21 If it were the latter and there were 22 22 demonstrations of inefficiency, I can tell the empirical is sufficient, given what the 23 courts have explained they need. 23 you, I would certainly consider it and I 24 Q. Well, I believe my -- I've offered 24 would certainly consider revising my 25 25 several hypotheticals and some time has opinion.

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	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2 If i	t's simply that there's a	2	caveat my answer that it's I suspect
	about the way I ran the test,	3	that would be my reaction. And confronted
	have to think about that, but	4	with a different reality, it might be a
	other evidence is so strong	5	different reaction.
	ry well might not change my	6	Q. Well, let's put aside for a second
	and I would still my	7	prior hypotheticals and just talk about the
	nding of the of what Halliburton	8	z-test.
	the courts have said, that the	9	If Miguel were to say to you, I made
	dence would be sufficient for the	10	a calculation error. When I correct for my
	purposes of determining and	11	error, the results of the z-test are
	ing market efficiency.	12	statistically insignificant.
	you were to reach your own	13	In your view, would that result be
	on that your event study test and	14	evidence of market inefficiency, regardless
	st resulted in statistically	15	of whether it establishes it or not, does
	cant results, would you view that	16	it
	nce supporting a conclusion of	17	A. No.
18 inefficier		18	Q does it weigh against a finding
	would it would erode, to some	19	of efficiency because it's evidence of
	y confidence in the conclusion.	20	market inefficiency?
	o far below the standard of more	21	MR. MARKOVITS: Objection.
	an not that the market was still	22	It's a compound question; two different
23 efficient.		23	questions.
	d that's again, I'm it was a	24	A. Well, we would still know
25 hypothet	ical question. I just want to	25	indisputably that four of nine of those
	- 000		
	Page 388		Page 389
	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2 events w	Steven P, Feinstein, Ph.D ere statistically significant, and	2	Steven P, Feinstein, Ph.D Is that evidence of market
2 events w 3 you can o		2 3	Is that evidence of market inefficiency?
2 events w 3 you can o 4 higher in	bbserve that four of nine is a much cidence rate than 5 percent or 6	2 3 4	Is that evidence of market inefficiency? A. It depends. It's case specific. It
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2 events w 3 you can of 4 higher in 5 percent, 6 rate for a 7 The 8 indicate to 9 as being 10 So, 11 to some of 12 the result 13 But 14 degree of 15 other Can 16 don't thir 17 wouldn't 18 about wh 19 to be trace 20 BY MR. 21 Q. W 22 here and 23 hypothet 24 Yo	ere statistically significant, and observe that four of nine is a much cidence rate than 5 percent or 6 which seems to be the incidence ll other days. e question is, would a z-test that difference in incidence rates statistically significant? I mean, it wouldn't it would, extent, diminish my confidence in a didressing a hypothetical with a funcertainty, given how strong the mmer factors are for Freddie Mac, I ak it would necessarily it necessarily change my opinion ether it was more likely than not ling in an efficient market. FRANK: ell, put aside the z-test strand let's talk about a z-test in a ical test.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Is that evidence of market inefficiency? A. It depends. It's case specific. It depends on at that point, you would look at the events and see, do the events compel that there should have been more significance. So it would depend. It very well could, depending on the case and the facts. If these were if there's no good explanation for why the sock failed the z-test, it could be evidence of inefficiency. It could be. THE WITNESS: So at this time, gentleman MR. GOLDFARB: Can we take a break before you go off the record? MR. FRANK: Okay. Let's take one more break. THE VIDEOGRAPHER: We are off the record at 5:45.

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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	THE VIDEOCD ADUED W. 1 1	2	your position on the record, but we I
3	THE VIDEOGRAPHER: We are back	3	reiterate my request for those materials.
4	on the record at 5:58 p.m.	4	Leading up to the deposition, we asked you
5	MD EDANIZ II 1	5	for all materials underlying and supporting
6	MR. FRANK: Unless you	6	his report and opinions, and we just never
7	gentlemen have your own questions you'd	7	did receive any materials relating to some
8	like to ask, at this time I would like to	8	of the matters that we heard, to which Dr.
9	suspend the deposition.	9	Feinstein testified today.
10	For the first time today, we learned	10	MR. MARKOVITS: And our
11	that Dr. Feinstein ran tests that were not	11	position on the record is that this
12	mentioned in his report and for which we	12	deposition is concluded, that those tests
13	were not provided any calculations or other	13	that were described were ministerial
14	relevant documents, including work papers.	14	diagnostics, that you shouldn't keep the
15	We ask that you produce to us any	15	deposition open for them.
16	documents that constitute such calculations	16	However, as we discussed and we
17	or work papers or other relevant documents,	17	agreed, we will look for the documentation
18	including any metadata that would show when	18	of those tests and see if it's already been
19	these tests were conducted. And upon	19	provided.
20	receiving them, we will consider whether or	20	If not, and if it exists, it will be
21	not we can close the deposition or whether	21	provided. We'll attempt to do so by
22	we will need to resume at another time.	22	tomorrow, and then we can both decide from
23	We understand that you may or may	23	there what the appropriate course of action
24	not agree with the position we're taking,	24	is.
25	and you should, of course, feel free to put	25	MR. FRANK: Fair enough.
	7 200		
	Page 392		Page 393
1	Page 392	1	Page 393
1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	Steven P, Feinstein, Ph.D I'll just add, given what you just	2	
2 3	Steven P, Feinstein, Ph.D I'll just add, given what you just said, that if these are just truly	2 3	Steven P, Feinstein, Ph.D
2 3 4	Steven P, Feinstein, Ph.D I'll just add, given what you just said, that if these are just truly ministerial tests, we do not want to spend	2 3 4	Steven P, Feinstein, Ph.D
2 3 4 5	Steven P, Feinstein, Ph.D I'll just add, given what you just said, that if these are just truly ministerial tests, we do not want to spend unnecessary time on matters that are not	2 3 4 5	Steven P, Feinstein, Ph.D
2 3 4 5 6	Steven P, Feinstein, Ph.D I'll just add, given what you just said, that if these are just truly ministerial tests, we do not want to spend unnecessary time on matters that are not going to be the subject of testimony and	2 3 4 5 6	Steven P, Feinstein, Ph.D
2 3 4 5 6 7	Steven P, Feinstein, Ph.D I'll just add, given what you just said, that if these are just truly ministerial tests, we do not want to spend unnecessary time on matters that are not going to be the subject of testimony and matters that will never be submitted to a	2 3 4 5 6 7	Steven P, Feinstein, Ph.D
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D I'll just add, given what you just said, that if these are just truly ministerial tests, we do not want to spend unnecessary time on matters that are not going to be the subject of testimony and matters that will never be submitted to a court. And if it is plaintiff's position	2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D
2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D I'll just add, given what you just said, that if these are just truly ministerial tests, we do not want to spend unnecessary time on matters that are not going to be the subject of testimony and matters that will never be submitted to a court. And if it is plaintiff's position that these tests are not going to be cited	2 3 4 5 6 7 8 9	Steven P, Feinstein, Ph.D
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1	Steven P, Feinstein, Ph.D	1	Steven P, Feinstein, Ph.D
2	CERTIFICATION	2	To: William Markovits, Esquire
3	I, DARLENE M. COPPOLA, a Notary Public, do hereby	3	Copied to: Jason D. Frank, Esquire
4	certify that STEVEN P. FEINSTEIN, PH.D., after having	4	Frank Volpe, Esquire
5	satisfactorily identifying himself, came before me on	5	James Goldfarb, Esquire
6	the 10th day of August, 2017, in Boston, Massachusetts,	6	Catherine Wigglesworth, Esquire
7	and was by me duly sworn to testify to the truth and	7	Adam Fotiades, Esquire
8	nothing but the truth as to his knowledge touching and	8	From: Darlene M. Coppola, CRR, RMR
9	concerning the matters in controversy in this cause;	9	Deposition of: STEVEN P. FEINSTEIN, PH.D.
10	that he was thereupon examined upon his oath and said	10	Taken: August 14, 2017
11	examination reduced to writing by me; and that the	11	Action: OPERS Vs. Freddie Mac, et al.
12	statement is a true record of the testimony given by	12	
13	the witness, to the best of my knowledge and ability.	13	
14	I further certify that I am not a relative or	14	Enclosed is a copy of STEVEN P. FEINSTEIN,
15	employee of counsel/attorney for any of the parties,	15	PH.D.'s deposition. Pursuant to the Rules of Civil
16	nor a relative or employee of such parties, nor am I	16	Procedure, Dr. Feinstein has thirty days to sign the
17	financially interested in the outcome of the action.	17	deposition from today's date.
18	WITNESS MY HAND THIS 14th day of August, 2017.	18	Please have Dr. Feinstein sign the enclosed
19	, c	19	signature page. If there are any errors, please have
20		20	him mark the page, line and error on the enclosed
21	DARLENE M. COPPOLA My commission expires:	21	correction sheet. He should not mark the transcript
22	NOTARY PUBLIC November 11, 2022	22	itself. This addendum should be forwarded to all
23	REGISTERED MERIT REPORTER	23	interested parties.
24	CERTIFIED REALTIME REPORTER	24	Thank you for your cooperation in this matter.
25	Today's Date: August 14, 2017	25	UNITED STATES DISTRICT COURT
	Page 396		Page 397
1		1	Page 397 NAME OF CASE:
1 2	Steven P, Feinstein, Ph.D NORTHERN DISTRICT OF OHIO	1 2	-
2	Steven P, Feinstein, Ph.D		NAME OF CASE:
2 3 4	Steven P, Feinstein, Ph.D NORTHERN DISTRICT OF OHIO	2	NAME OF CASE: DATE OF DEPOSITION:
2	Steven P, Feinstein, Ph.D NORTHERN DISTRICT OF OHIO EASTERN DIVISION	2	NAME OF CASE: DATE OF DEPOSITION: NAME OF WITNESS:
2 3 4 5 6	Steven P, Feinstein, Ph.D NORTHERN DISTRICT OF OHIO EASTERN DIVISION ***********************************	2 3 4	NAME OF CASE: DATE OF DEPOSITION: NAME OF WITNESS: Reason Codes: 1. To clarify the record. 2. To conform to the facts.
2 3 4 5 6	Steven P, Feinstein, Ph.D NORTHERN DISTRICT OF OHIO EASTERN DIVISION ***********************************	2 3 4 5 6 7	NAME OF CASE: DATE OF DEPOSITION: NAME OF WITNESS: Reason Codes: 1. To clarify the record. 2. To conform to the facts. 3. To correct transcription errors.
2 3 4 5 6 7 8	Steven P, Feinstein, Ph.D NORTHERN DISTRICT OF OHIO EASTERN DIVISION ***********************************	2 3 4 5 6 7 8	NAME OF CASE: DATE OF DEPOSITION: NAME OF WITNESS: Reason Codes: 1. To clarify the record. 2. To conform to the facts. 3. To correct transcription errors. Page Line Reason
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